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AMERICAN BEE JOURNAL

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THE

AMERICAN

BEE JOURNAL.

JAN. 1861

EDITED BY SAMUEL WAGNER

VOLUME I.–1861

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75th YEAR

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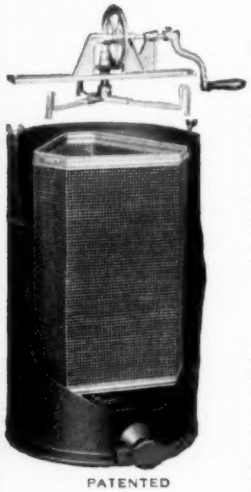

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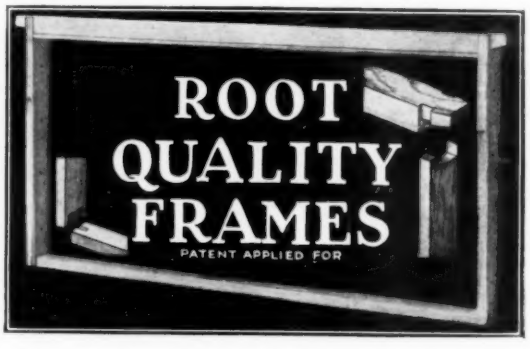

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AMERICAN BEE JOURNAL

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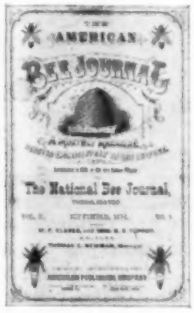


1874

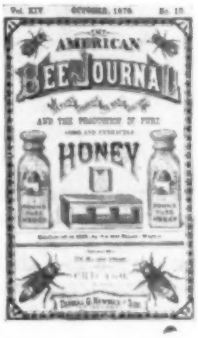
Our Diamond Jubilee

The American Bee Journal, first Bee Magazine in the English Language begins its Seventy-Fifth Volume.

JANUARY 1, 1861, appeared the first copy of a bee magazine in the English language. Its editor was Samuel Wagner, cashier of a bank, a man who was destined to wield a profound influence on the new industry of honey production which was just then showing the first signs of emergence from the fads and superstitions with which it had been surrounded for centuries. The office of publication was the job printing establishment of one A. M. Spangler at 25 North Sixth Street, Philadelphia.

At the time this first copy of the first bee magazine in English appeared (see our cover illustration), there were few of the implements now in common use among the beekeepers. Conventions of bee men had not yet been held, a practical smoker had not yet been invented, queen excluders were unknown, comb foundation was still to be perfected, the extractor had not come into use nor had commercial queen rearing been suggested.

Langstroth had invented his hive but it was not yet in common use. Most of the important events relating to the business of honey production as now practiced have taken place since the birth of this publication. They have been made known to American beekeepers through the medium of its pages and it has played an important part in the rise of an industry.



1878

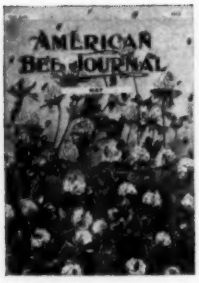
In Wagner's first announcement of his plans for the magazine he said, "It will serve as a repository of whatever is, of practical value in this department of rural economy; and as a vehicle by which information can be readily, rapidly and widely diffused so that the early introduction of useful improvements may be secured."

Wagner's prophecy has been realized. One has but to review the history of the time to see how completely so. In its pages were recorded the invention of the extractor, the smoker, comb foundation—a hundred useful implements; its pages also heralded the introduction of alsike clover and sweet clover and led the movement to secure their spread into every nook and corner of the clover belt. Its pages also recorded the beginning of the movement to secure the enactment of a pure food law and led the movement until stronger and more aggressive leaders were ready to carry it forward to final success.

The history of the American Bee Journal has been the history of the rise of beekeeping and the one is inseparably linked to the other.

The first volume of the magazine contained much of permanent interest. Dzierzon's theory of parthenogenesis was outlined at length and for the first time became available to American beekeepers. Likewise the Italian bee was brought prominently to the attention of bee men in this country. Wagner had made an unsuccessful attempt to import these bees several years previously and only a few months before issuing the first number of the Journal had finally succeeded as had S. B. Parsons who was the first to succeed. Much space was devoted to the new race for many years after its intro-

1893



1913

duction and the influence of the Journal had much to do with its wide distribution and general popularity.

The early volumes contain the names of many men of world-wide reputation in the beekeeping field. Langstroth was a contributor almost from the beginning. Henry Alley, Adam Grimm, Moses Quinby, Elisha Gallup and the Baron of Berlepsch are among the famous men who contributed to the early numbers.

A. I. Root began his career as a contributor to this magazine and he continued to write for its pages under "Experiences of a Novice in Beekeeping" for several years. Charles Dadant made his first contribution in November, 1867, and introduced himself as a newcomer from France but four years before. From that time until his death in 1902 his name appeared frequently as a writer in its pages.

Over a long period much space was devoted to the discussion of patent hives and hundreds of different kinds received attention. Charles Dadant's defence of the Langstroth invention which appeared in this magazine had an important place in the final judgment which awarded credit to the frail minister who profited so little from his effort. Charles Dadant was familiar with the various kinds of hives in common use in Europe and was able to point out the essential difference of the Langstroth hive from them.

In one year, 1869, more than sixty patents were recorded on hives and appliances which gives an inkling of the public interest in the subject at that time and the amount of correspondence among the beekeepers which the subject entailed. Wagner made a good selection of material for the Journal and a large part of the articles which appeared under his editorial direction still holds much of interest.

In the seventies numerous other bee magazines were started, some of which continued for several years. Only one, Gleanings in Bee Culture has survived until the present. Most of these made their beginning after the death of Wagner in 1872. After Wagner's death his son carried on with the assistance of Langstroth who probably did most of the editorial work until January, 1873, when W. F. Clarke became editor. After the first year the Journal had been published in Washington until Clarke assumed its management when it was moved to Chicago.

Clarke's connection with the magazine was short and apparently uneventful. He appears to have sold the publication to Thos. G. Newman in December following its purchase in 1873, although his name still appeared as editor until the May issue, 1875. For a part of this period Ellen S. Tupper was joint editor.

Newman continued as editor and publisher until 1892 when it was sold to George W. York who conducted it until 1912 when it was purchased by the present owners, Dadant & Sons and moved again, this time to Hamilton, Illinois, where it has since been published.

In October, 1870, Dr. C. C. Miller first appeared as a contributor to the Journal and from that time until his death in 1920 he was prominent in its pages. For several years he was associate editor under York and continued his department of questions and answers to the end of his life. He thus was actively associated with the magazine as contributor and assistant editor for a period of fifty

1926

years. Doctor Miller thus served for a long term and had a wide influence in the industry through its pages.

In reviewing its pages we find that the American Bee Journal has been the instrument for much of the progress of beekeeping during the long years since it was established. There are few publications still in existence which were circulating in January 1861, and many great changes have taken place in the nation and the world at large, as well as in our industry during that period. When Wagner promised that it would be a vehicle for the spread of information he anticipated the service which it would render. Through its pages most American beekeepers who have become famous, have become known to the followers of the craft. Hutchinson, Doolittle and many others thus followed the paths of Langstroth, Quinby and Henry Alley.

There have been other publications in later years to share the responsibility and the opportunity of service to the industry and there will still be others in days to come, but much of the history of the early years of beekeeping in America is written only in the pages of The American Bee Journal.

We are proud of its record and anxious to maintain the high standard set by the first editor. It is our purpose to continue to offer to our readers the best that may be secured and to remain a vehicle through which information can readily, rapidly and widely be diffused to the end that useful methods and improvements may still be secured.

Let Us Call Them Health Inspections

By Hy. W. Sanders,
Manitoba.

Recent suggestions in the bee journals that we earnestly try to get rid of the unpleasant term "foulbrood" suggest that we also stop talking about "disease." When public officials examine school children they do not call them "disease inspections" or "public disease service," but "health inspection" and "public health service." Why should we not follow suit?

Undoubtedly the unthinking use of the word "disease" and "foulbrood" has done great injury to the reputation of our product in the minds of the public. While the scientific term "Bacillus Larvae" should be used wherever possible, it would seem that we have a useful popular substitute in the simple letters "A. F. B." This is an age when initials are used greatly—as witness N. R. A., A. A. A., and the other alphabetical conglomerations in the government. People often talk about T. B. when they do not want to say "Tuberculosis" and somehow it sounds much less suggestive. During the war people talked learnedly about T. N. T. who probably never even heard of trinitrotoluene, or whatever the explosive is called. Everyone knows what S. O. S. means and most people know that N. G. means that a thing is no good.

So let us try always to say merely A. F. B. and to refer always to our inspections of the bees whether by official government inspectors, or by the beekeeper himself as "health inspections." Let every beekeeper appoint himself a committee of one to frown upon the usage of the word "disease" in reference to the bees.

1929

C. P. Dadant, Veteran Editor-in-Chief.

MEMORIES

The editor recalls some interesting incidents in connection with important events in the development of American beekeeping.

By C. P. Dadant

WHEN we came to America, in 1863, my father secured two hives of bees, in square boxes. He had kept bees in France in the Debeauvoys hive. This hive, at that time, was a side-opening hive, with a door that could be removed to handle the frames and could be pushed in to reduce the dimension of the hive when a less number of frames was used. He transferred his bees into that style of hive. The frames were not square, but diagonal, so that the hive might have a slope to let the water run off. Shortly afterwards, having read Quinby's "Mysteries of Beekeeping" and Langstroth's "Hive and Honey Bee," he changed the shape of the frames to square and made them hanging on rabbets. The hive he used contained about sixteen frames 12x12½ inches and would be now called by the name of "long idea hive," a single story hive. At that time, little square boxes were used for supers, each holding about five pounds of honey, six of them on each hive. As these boxes had for entrance only a small opening, about 1x2 inches, it was difficult for the bees to ventilate them, and I remember wondering why the bees would refuse to occupy them, when they would build combs on the outside of them and even, sometimes, under the bottom board. We learned the reason later.

There is an advantage to straw hives which my father realized at all times, that is, they are warmer in winter and cooler in summer than hives made of lumber. So he went to work and manufactured straw movable-frame hives.

The first outapiary that we ever had was located about five miles from our home yard and established in 1872. It consisted of only forty colonies. It was not located in a very good situation, being in a slope to the north, where the colonies did not get much sunshine in the late fall, winter and early spring. After two or three years, we moved it to another location, which was not very much better, as the latter place was at the bluffs, where the Mississippi runs between hills, without any lowlands adjoining. We did not appreciate the fact that the river was cutting half of its range, until we established a second outapiary, with much better results, in a slope of the prairie, about five miles from the river, where lowlands and pastures gave us both a June crop of clover and a crop of fall blossoms. One learns by more or less expensive experience.

An article on the occupations of worker bees in our Journal some time ago reminded me of how we confirmed and corroborated the statements of the scientists, and especially those of Dr. Donhoff, a German observer, whose experiments are mentioned in paragraphs 160 to 165 of "The Hive and Honeybee." We, too, had brought Italian bees to a neighborhood of black bees. My father, who was of an inquiring turn of mind, was very desirous of testing the statements of the former students. So he made an observing hive, with one comb. Many people had hives with glass sides, which they called "observing hives," but in such a hive, the glass being next to the outer frame, it was rare to be able to watch the queen and the actions of the bees in brood rearing. So the hive he made had one comb only, with glass on both sides, and shutters. I can still remember the first occasions to watch the bees at work. They became very soon accustomed to light being thrown upon them and kept on working as if nothing was the matter.

The first comb we used was a comb of black bees, brood in plenty and plenty of young bees. Then we introduced an Italian queen. It was delightful at the end of twenty-one days to see the emerging of the first young Italian workers, with their yellow rings. After one has watched a colony in this way, one never makes the mistake of some old box-hive beekeepers, who, when they see a small, shiny bee, say that it is a young bee whose hairs have not yet grown. The young bees, just hatched, are hairy

all over and have a weak, staggering aspect.

With that observing hive we could see not only the first emerging of the young yellow bees, but we could follow them from day to day in their actions.

When we arrived in Illinois, in 1863, homes were neither costly nor elegant. My father built a log house, 18x18 feet, with a small lean-to, for kitchen. Under the log house he had made a hole in the clay soil, 12x12 feet, for a cellar. This was the first cellar we used for bees. But as we had to keep in it our stock of potatoes, turnips, apples, etc., there was very little room for bees. He kept there only such weak colonies as he judged could not spend the winter out-of-doors and live; usually only two or three, piled in a corner, behind a curtain made with gunny sacks.

In 1875 I was married, and as my father did not believe in hiving the swarm with the old colony, he concluded that he had best build himself a new home and let me keep the log house. So he did the swarming, himself. When he did this he built a large cellar, 22x32 feet, and divided out a portion, 12x22, for a bee cellar. As the cellar had a hot-air furnace, it was necessary to isolate the bee cellar from the main part with a heat-proof wall. This was made of a four-inch partition filled with sawdust.

In this cellar we wintered as many as 120 hives of bees for eighteen successive years. But in our part of Illinois there are usually so many really warm days, in the middle of winter, that one feels sorry for the cellared bees when the outdoor bees take a flight. If every winter were hard, with five to six weeks at a time without a flight, it would be desirable to winter always in the cellar. As it is, we found that it hardly paid to put the bees away. But if I could find a real weather prophet, I would be sure to put the bees in the cellar when he predicted a long, hard winter.

A honey house? Do you think we could have afforded to build a honey house, when we lived in a log house, during the first ten or twelve years of our beekeeping? No. When we wanted to extract honey, as we did not like to smear honey upon the floor of our home, we had made up a sort of tarpaulin, of "duck," painted so as not to soak honey, and this was spread upon the floor of the kitchen before bringing in the honey extractor and the supers. A barrel, with a sieve over the bunghole, was set up in a corner, over a skid, high enough to enable us to put a pail under it, when drawing out the honey. Sometimes we had three or four such barrels full of honey, which we retailed out as fast as we could. Occasionally an accident would happen, more or less enjoyable. I remember once placing a ten-pound pail under the honey gate, to catch the possible drip during the night. The barrel was leaning forward so the honey might run to the faucet. During the night the thick, partly granulated honey settled forward so as to bring the center of gravity to the front end. The barrel tipped forward, the honey gate was opened by the edge of the pail that had been so carefully placed there to catch the possible drip, and the honey noiselessly filled the pail and spread evenly upon the floor.

Noiselessly, yes! Did you ever notice how noiseless honey is?

Half a barrel of honey spread upon the floor of the kitchen! Luckily we did not get up during the night, so we avoided tramping in it. This honey had to be gathered in the best possible way and kept for feeding. Bees do not ask any questions, but they probably wondered at the fact that this honey contained more or less floor dust.

About 1876, an old beekeeper who had been local agent for the Langstroth patent rights, a Mr. Barlow, living some twenty miles from us, in Missouri, concluded that he could not take care of all the bees he had, and asked us to take charge of a hundred colonies or so for him. We accepted and it was agreed that I would help him haul those bees to two apiaries on our side of the river and take care of them for a year for half of the bees' increase and half of the surplus honey. This was done. His colonies were all in ten-frame standard Langstroth hives, frames spaced 1⅜ inches. We made some seventy-five or eighty divisions, half of which number were ours.

The following year we moved those colonies to some of our apiaries where we already had a goodly number of Quinby hives. This made it very convenient to compare the two styles. Here is what we found:

Under the same management, the colonies with nine or ten frames, Quinby, equal in area of brood combs to twelve- or thirteen-frame Langstroth hives, did not fill their brood chamber as early as the colonies in ten-frame Langstroth hives. At the time of fruit bloom, if we placed supers upon the hives, the bees in Langstroth hives moved into the supers and bred there. The colonies in Quinby hives had no need of supers as yet and kept below, so that we concluded that it was unnecessary to enlarge the hive this early. But a little later those colonies were much more populous than the Langstroth, since they had had more room for brood in a compact brood chamber, and they filled the supers much faster than the Langstroth colonies. On page 13 of the "Dadant System of Beekeeping" I have mentioned the fact that, in an apiary situated on a large farm, the lady of the house complained of our having brought there hives of both styles, as, she said, "the large hives were the ones that brought the crops." We gave them a share of the crop and she was keen enough to notice that the crop was not equal from both large and small hives in the apiary.

The only reason I can give for the large crops with the large hives is the greater ease for the queen to develop her fertility fully in frames of larger surface, and also to the better wintering of colonies in deeper frames owing to the greater amount of honey above the cluster during winter, for, in deeper frames, there is more honey in each comb.

In 1873-74-75, the Iowa State Fair was held at Keokuk, only six miles from our home. It was easy to make up an exhibit for the fair, and I did. But having no comb foundation, as yet, we could not make a very elaborate display. The little pound sections were not yet in existence; the only fancy package we had was a five-pound box with glass sides. We were already extracting honey, but the fair authorities did not know it under any name but that of "strained honey." The amount of premium was small. If I remember correctly, the first year, they offered only about $10 on honey and bee items. I took second prize, a beekeeper of northwestern Illinois, R. R. Murphy, having on exhibit one five-pound box of white and better sealed honey than any of mine. He was rather abashed at having received first premium, for he had taken less pains than I had, to make a good exhibit. But I had no cause for complaint, for his sample was really better looking than mine.

I mention a visit which I paid to Mr. Langstroth, in August, 1885, in company with Chas. Muth and at his urgent request, for Muth was very desirous of completing the proposed arrangement between Langstroth and ourselves for the revision of "The Hive and Honey Bee." Mr. Langstroth then lived at Oxford, Ohio, with his daughter, Mrs. Cowan. His son-in-law, Cowan, was a traveling man and rarely at home.

We lunched at his home that day, with him and Mrs. Cowan, and after lunch, about 2 o'clock p. m., we went to the apiary; for in spite of his sickness, he still had bees, five colonies. The summer was very dry and he was feeding them, giving them sugar syrup, regularly every afternoon, about 4 o'clock. He called our attention to the fact that no bees were flying about the pans in which he gave them food. A couple of hours later, he prepared about a teacupful of sugar water, and we again accompanied him to the apiary. There were dozens of bees then flying about the shallow pans. He said:

"See, not only do they know that I am to feed them, but they seem to sense the exact hour when the feed is to come. They will take this away lustily and will again be quiet until

tomorrow at the same hour, for I have been feeding them very regularly at the same hour for several weeks, without fail."

This shows with what care Mr. Langstroth made his experiments upon bees. That is why so few of his remarks on the habits of bees could be criticized.

I did not preserve a memorandum of the exact date at which Mr. Langstroth came to Hamilton to make arrangements concerning the revision and re-publication of the "Hive and Honey Bee"; but I have under my eyes a letter from him, dated October 2, 1885, speaking of his intended visit; then another of October 12, in which he speaks of having returned home "on time." So he must have come to Hamilton about the 8th of October.

During his stay with us, we desired to show Mr. Langstroth our methods of extracting. The work at the home apiary was all finished, for the season. So he accompanied me to an outapiary, some five miles from our home; a crew of men being at work there. We went in the afternoon and spent an hour or so with the men. He went from the apiary to the honey house, which was also a milk house, and back again to the apiary. He watched everything very closely, but made no remarks. At length, on the way back to our home, in the buggy, after quite a space of silence, he said to me: "A man may leave an occupation for fifteen years and imagine that he can take it up where he left it, but he cannot do so; for he finds himself away behind." It was no wonder that he felt himself so much behind, for he had done no work in a producing apiary for years. He had not even worked upon his book since 1859; so he had written us in his letter of October 2. The great improvements secured by the honey extractor, comb foundation, bee smokers, pound sections, etc., had never been used by him, though he knew well about them.

One of the most interesting incidents of the old days was the invention of the honey extractor. Many had wished for some method of removing the honey from the combs, but no one had devised a way to do it, except by straining, until the Italian, Hruschka had the suggestion of centrifugal force. In April, 1868, the discovery was published in the American Bee Journal, page 189, by Mr. Langstroth. Every one of us beekeepers, readers of the Journal, had a machine made, the same summer. They were very clumsy and bulky machines, but they did the work, although the number of combs broken in the first attempts must have been immense, if we judge of it by our experience. Our own machine was ridiculously bulky, for we had large combs and did not place them on end, but horizontally, in the extractor. Why? Because, like the old farmer who put a stone in the other end of his sack of wheat on his horse, we did not know any better.

The tinner made the extractor can for us and the blacksmith made the frame. The screen was just common fly screen, which had to be reinforced with cross pieces, as it bagged out of shape under the weight of the combs. An ordinary butcher knife was used to uncap. But we did not need much uncapping, for, in the enthusiasm of the beginning we extracted the honey before it was sealed, and of course, while it was still more or less unripe. But the quantity secured was enormous and A. I. Root reported having planned to empty his cistern in order to use it as a honey tank.

Although we had no facilities for taking care of the cappings except a bread-pan especially made, about 3 feet in diameter and 8 inches deep, and several extractor cans in which to drop these cappings when the pan was full, we could still get along at home, because we worked in a bee-proof house. But when we were at Mallard, at the home of Daugherty, we had only an old log house in which to do the extracting, in which he stored his mowers, corn shellers and corn cobs and all the rattle traps and rats of an old farm. It would have been fairly good, had the building been bee-proof. But any man who has known of the old log house, knows how the roof leaked both rain and bees, and how the chinks between the logs would accommodate the passage of squirrels, mice, rats and bees of course. This was where we had to extract four or five thousand pounds of the nicest kind of honey. We filled the chinks in the walls with newspapers. The big bread pan was soon full. The head was taken out of an old barrel, and the cappings dumped into it. It leaked more or less, of course.

It was then that I devised the "capping-can" or "uncapping-can," as some people call it. We would uncap several thousand pounds of honey, over that can and draw the separated honey from the outer can every evening. The reader knows how the capping can is built. It is an outer can with faucet and pivot in the center, and an inner can or sieve fitting inside of the first, with its screen bottom resting on the pivot. As fast as the cappings were dropped into it, the honey drained down into the lower can. This gave us peace of mind, for when night came we simply covered our capping can with a cloth and dared the rats to do their worst.

Between 1870 and 1875, no one put up honey in tin. We began with gallon pails. They did not prove suitable, as they were too large for a 10-pound package. A tinner of our city, who had been manufacturing baking powder containers, proposed to us to experiment upon different sizes of tin vessels. So he made for us a lot of pails of the proper size for 10 pounds of honey, with lids fitting on the outside. Those were hardly suitable for honey until it was granulated, as the honey would leak out over the top, if the pail was inverted. We finally hit upon the idea of pouring a light stream of beeswax mixed with a little lard, into the inner edge of the cover. This made the pail practically tight, even when inverted. At present, the friction-top pails remedy the difficulty much more positively.

A Good Honey Plant

Enclosed you will find a twig from a tree which grows near my home. It is about ten feet high. It is an evergreen and droops when in bloom. It is full of bees and flies when in bloom. O. J. S., North Carolina.

The twig is identified as Sea Myrtle (**Baccharis halimifolia**), which is common to the seacoast from Massachusetts to Florida and along the Gulf Coast to Texas. It blooms in late summer and is reported as the source of a good honeyflow in some seasons. Although it occasionally reaches a height of ten feet or more as stated by our correspondent it is more often found as a shrub from three to six feet high.

Baccharis is a wide spread group of plants in mild climates. In California **B. viminea** is known as guatemote or mulefat and **B. pilularis** is called Chapparel broom. Both yield honey in a rather slow and unimportant flow, usually coming when there is little else for the bees. Guatemote is the local name for a species also important in Arizona where it grows along the banks of irrigating ditches. The Arizona plant however, is **B. glutinosa** also known as seepwillow.

There are several species of Baccharis common to a wide expanse of country and all are probably of some importance to the beekeepers. A peculiarity of the plants is that a portion of the flower remains as a husk giving the appearance of bloom long after the flowers have fallen.

F. C. P.

The Universal Spirit

Many have troubled themselves and others to discover the severall kinds of working bees, whereas of working bees (in this part of the world) there is but one sort. All bees agree in their operations, naturall dispositions and inclinations, all make their combs with hexangle cells, are all industrious to gather honey. . . . And all good men have the same nature in them, the same spirit, though they be never so remote from one another.

—Culled by W. H. Hull,
Virginia.

Three Quarters of a Century

This issue begins the seventy-fifth volume of the American Bee Journal. We are reprinting a number of articles which appeared in a time long past, because of the special interest which attaches to them. Sometimes a brief announcement may be of far greater importance than appears at the time. Some articles which appeared in this magazine resulted in great changes to the bee-keeping industry.

It may be of interest to our readers to recall briefly the changes which have taken place since the beginning of the American Bee Journal. How much this publication has influenced the industry no man can tell. At least we know that it has been very closely associated with the rise of commercial honey production as we now know it.

The invention of the extractor was first announced to American beekeepers through its pages. The general introduction of Italian, Carniolan and Caucasian bees to this country has taken place since the first issue appeared. Such tools as smokers, excluders, bee escapes, etc., have all come into use within the period of its circulation. The comb honey section, comb foundation, and other essential equipment were unknown to the craft in that day. Commercial queen rearing as we know it now was undreamed of then and packages of live bees to be sent by mail or express were a much later development.

The present day beekeeper would feel that he could do but little with the equipment which was available to the men of that time. The review of the events of the years recorded in the pages of this magazine serve to remind us of the debt we owe to those who have gone before.

Looking Forward

In looking ahead one wonders what great improvements are still to come. Perhaps important discoveries of which we have not thought, and of whose need we are not conscious, may make great changes equal to those of the past. What they will be is not yet apparent.

At the moment the greatest demand is for relief from the menace of disease, and this is now in sight. Similar threats are being met in other fields by breeding resistance, and with the Watson method of controlled mating the equipment is now available for similar success with bees. We look forward confidently to the solution of this problem in a comparatively short time.

Another great change which is likely to come soon is in the marketing of our product. One concern which recently came into the honey market expects to buy a million pounds of honey each year. It will take but few such customers for honey to revolutionize our present haphazard marketing system. The new outlets for honey which have been developed in recent months promise a demand which will compel the handling by the same stable methods that other farm products are sold. This will greatly simplify the problems of distribution and give a far better market to the producer.

New Schedule of Minimum Prices for Package Bees and Queens

We have just received from the Control Committee the following notice of a revised schedule of prices for package bees and queens for 1935. These prices will not become effective until approved by the Secretary of Agriculture but it seems fairly certain that approval will be given shortly.

"On account of numerous requests from both shippers and buyers, the Control Committee of the Marketing Agreement for Package Bees and Queens met in Valdosta, December 18 to reconsider the recently approved price schedule for package bees and queens [which we have given in full in this issue on page 25].

"After a thorough consideration of the minimum price schedule approved by the Secretary on December 1, the Committee unanimously adopted an amendment to the schedule reducing the price of nuclei to the same level as packages and providing for the dealer a wholesale discount of 15 per cent from December first schedule [page 25].

"The Committee believes that the proposed new schedule will not discriminate against the small shipper and that it is at a level which will encourage the maximum use of both packages and queens.

"This revised schedule will be submitted to the Secretary of Agriculture for approval and, when approved, will become effective immediately. If not approved, the December 1 prices will automatically remain in effect. Until approval, the December 1 schedule remains effective."

Poisonous Honey

From time to time there appear in the newspapers accounts of serious illness from eating honey from some poisonous plant, most commonly mountain laurel. There has been something of mystery in such cases in that while persons have very evidently been poisoned by the use of honey, other persons eating from the same source at a later time feel no unpleasant effects.

The writer well remembers a visit to southern Missouri of some Iowa folks unfamiliar with the persimmon. The fruits were green at that season and the visitors were greatly surprised at the unpleasant taste. Some were taken home for the purpose of playing tricks on unsuspecting relatives. By the time the fruit was given to the friends in Iowa the character had changed and it had become highly palatable.

The probable explanation of the effect of honey from poisonous sources is that the poisonous element disappears after a time and that it is only the fresh honey which is poisonous. Reports from New Zealand are to the effect that fresh honey from at least two plants common to the region is poisonous while well ripened honey from the same source is quite safe.

The well known bitterweed honey from the mountain regions of Arkansas and Tennessee loses much of its extreme bitterness after it is well ripened. If left standing in a deep tank until the pollen grains settle to the bottom the quality is much improved, although never a good quality honey.

Where there is any question as to the quality of honey it is always safest to let it become fully ripened before using. So far we are unable to find any well authenticated cases of poisoning except from such honey as was fresh and unripened.

Honey from the yellow jessamine of Florida and the snow-on-the-mountain of the western plains is sometimes reported as somewhat poisonous.

Association Membership

From an exchange we learn that there are 130,000 beekeepers who are members of organizations in Germany. This would indicate a prosperous honey industry in that country, although the average yields per colony are smaller than here. Although the United States is a much larger country, it is doubtful whether the total

membership of all our beekeeping societies would reach half that figure. It is probably much below the halfway point. No way has as yet been found to stimulate the interest of the rank and file of bee men in association membership. We must offer some service which the beekeeper regards as essential in order to secure final success with organization work.

Value of Personal Contact

The airplane record across the United States is now a little less than ten hours. With other means of travel facilitated accordingly, one does not think of distance in the terms of even ten years ago. We suggest that beekeepers more and more are profiting by personal contacts with other beekeepers located in different sections of the country. No more do we have to depend entirely upon the magazines like our own nor upon the occasional visit to beekeepers' association meetings for some very valuable contacts with other beekeepers.

This was brought very forcibly to the editor's mind by a letter from James I. Hambleton, of the Bee Culture Laboratory at Washington, announcing the visit of Mr. and Mrs. F. R. Buchanan, big beekeepers of Glendale, California. Mr. Buchanan was making a trip through the country visiting beekeepers. He attended and addressed the Wisconsin State Beekeepers' Association meeting. He was formerly a resident of that state and had also received his law degree at the University of Michigan.

Then the Buchanans went on to Washington, taking in other points of interest while on the road.

We have recently had here at Hamilton the visit of a dozen or more large beekeepers either on their way north or south, east or west. Not only did they visit us but were visiting a number of prominent beekeepers as they traveled. These contacts are of inestimable value, we believe. Perhaps in the future, we will be taking our ten-hour plane and going over to Jones' in Saskatchewan to see just how he takes care of his packages in the spring. At least it is not beyond the realm of possibility.

The Moisture Supply

Mid-western beekeepers have rejoiced because of the frequent rains which have fallen over much of the Mississippi and Missouri River valleys in recent weeks. There is a very general feeling that the drought is definitely over and that we can look forward to normal rainfall in the season ahead. Weather officials, however, tell us that the danger is not yet passed, that not enough rain has as yet fallen to restore the reserve of subsoil moisture. They advise that there is still a very real danger of another dry summer ahead. The subsoil has become so dry that long continued wet periods will be necessary to restore normal conditions.

Wintering

A significant indication of the trend of present day beekeeping practice is the general plan of wintering out of doors even in the far North. We now find the bees generally wintered in tar paper cases in regions where formerly it was thought that only cellar wintering could succeed. In many localities the tar paper wrap has replaced the heavy winter case because it is cheaper and quicker to prepare, yet results appear equally successful. Outside wintering has quite generally been satisfactory even in the Dakotas and the prairie provinces of western Canada in recent years.

Beekeepers should remember, however, that we have had a series of mild winters and there is some question as to the probable results should a severe winter come along. Weather appears to be the result of certain forces which move in cycles. As we had a series of long and very severe winters in the past, so we must expect that such winters will come again. It is probable that before long we will be faced with another series of winters of old time severity. The question naturally arises as to what will happen to these outdoor colonies when such weather must be faced.

Large vs. Small Brood Frames

There is no longer any argument among leading bee men as to the necessity for a large hive for successful honey production. There remains a difference of opinion as to whether this is best secured by the use of two small brood chambers of the Langstroth dimensions or one large one of the Dadant size. In this connection let us call attention to a statement from Charles Dadant which appeared in this magazine in 1875. He said:

> "In a hive containing many small frames, the same surface of brood needs more bees to encircle it, than in a hive whose frames are larger. By actual count, I have found that a square frame twelve inches both ways, needs fifteen per cent more bees to encircle the same amount of brood than in a Quinby hive whose frames are larger, being eighteen inches long by eleven inches in height."

The release of fifteen per cent of the bees for field work during a good honeyflow might add very materially to the amount of surplus honey stored.

Importance of Pollen

We have had occasion to mention the importance of a sufficient pollen supply. In the Australian Beekeeper (October 15, 1934), John H. Rosser has an article in which he estimates that a strong colony of bees consumes a half pound of pollen each day at the height of brood rearing. A little figuring will show that on this basis the pollen consumption runs to a surprising amount in the course of a year. Where a hundred hives of bees are kept in a single yard it is at once apparent that the pollen harvest is an item of no inconsiderable extent. No wonder that difficulties arise when so many colonies are kept together in locations where the supply of pollen is scant. It is interesting to note that Rosser has found that the germ of the corn grain is a satisfactory substitute for pollen and that he contends that his bees have raised brood with the maize pollen although other meals which he fed were quite useless.

Finding New Markets

The beekeeping industry appears to be coming through the depression in a more favorable situation than most agricultural enterprises. In spite of the fact that we have lost most of our export market which formerly took several million pounds of honey, our surplus has largely disappeared.

The reason is not far to seek. The activities of the American Honey Institute have resulted in finding many new outlets. One large firm of food distributors has recently launched a new product which it estimated will require a carload of honey each month. In view of the large number of such instances there is every reason to believe that the beekeeper can look forward with confidence to a stable market for his product for a long time to come.

When the reaction came and the price of honey fell to a price below the cost of production there was some agitation for a reduction in output. Had this advice prevailed the beekeeper could only have reduced his standard of living to an inconceivably low point. Instead, however, many extensive beekeepers increased their production in order that the larger output would give them an income comparable to that to which they were accustomed. The new outlets have absorbed this increased production with promise of even larger markets ahead.

There are those familiar with the general agricultural field who contend that plenty of new uses can be found for all farm products to restore prosperity to the farmer if only sufficient effort be centered in this direction. Certainly there is little encouragement in the proposal to reduce the output when prices are below the normal level. We must find ways and means of increased income and the logical method is by finding new uses for our products.

BEE CULTURE

From January, 1861.

By Samuel Wagner

This is the first article in the first issue of the American Bee Journal in which the editor, Samuel Wagner, gives a reason for the new venture.

BEE CULTURE need no longer be a precarious and empirical pursuit. Discoveries and improvements comparatively recent, have so elucidated its principles, that its processes can be more definitely regulated than those of almost any other branch of rural economy. Without being divested in the least of that attractiveness which, from the earliest periods of history, drew to it the attention alike of the humble cottager and the inquiring student—making it a subject of unflagging interest and unfailing enjoyment, it now claims additional regard from the fact that it can be so conducted as to become a source of certain and amply remunerating profit. It may be viewed, first, as a science, having for its object the attainment of a correct knowledge of all that pertains to the life, habits and instincts of the honey bee; and, secondly, as a practical art, which regards all the attainments thus made and to be made, as the only reliable foundation of successful management.

The chief cause of the depressed condition of bee culture in general, is not to be traced to any want of attention to the subject. It is to be found rather in an inadequate knowledge of and erroneous opinions concerning the physiology and habits of the insect; in the defective or ill-adapted construction of the hives, however differing in form and material, in which it has been doomed to live and labor; and in an injudicious mode of treatment. This, more than aught else, has prevented bee culture from making progress commensurate with the time and attention devoted to it. Despite the most assiduous observation and study, the interior of the hive and the domestic economy of the colony, remained till recently, and still remain for the masses, a mystery. The common beekeeper knew that he was the owner of a stock of bees; he knew also, if he knew much, that among them was a queen, and workers, and drones. But the peculiar functions of each kind or class, and their respective relations to each other were, and still are with most persons, matters of conjecture and dispute.

Of the means, also, of properly directing the labors of a colony, of regulating its operations systematically, so as to secure desired ends, almost utter ignorance prevailed, and still prevails very generally. After the swarm was secured — whether with or without superstitious observances—the hive was placed on its stand, and the bees were allowed to prosecute their labors as best they might. If in peculiarly favorable seasons or locations, the stock happened to thrive satisfactorily, its owner was thought to have luck; but rarely had any one the vanity to claim success as the result of his management.

And yet, duly allowing for the vicissitudes of seasons, certain and regular success does most essentially depend on management. An adequate knowledge of the nature, habits, and instincts of the insect having once been attained, and a thorough control of the operations of the colony secured by the use of properly-constructed hives, the business fairly and truly becomes a subject of mere management. The means of acquiring such knowledge have now been made accessible, and hence we were warranted in stating, as we did, that bee culture need no longer be a precarious pursuit, but should be one regulated by system.

The accumulated discoveries made within the last fifteen years, combined with deductions from facts previously recorded, have totally revolutionized the business, placed it on a firm foundation, and given it an impetus which must cause it to advance and flourish. Having reached this stage of development, it claims a higher appreciation, and deserves a more general diffusion than before. It can be successfully prosecuted to a large extent in almost every region of the temperate zone, and under almost any circumstances. It requires only a small amount of capital, and comparatively little room, and exacts so little time, that the ordinary intervals of leisure suffice. It may, indeed, be regarded as an agreeable relaxation from the severer toils of husbandry, the drudgery of mechanical occupation, or the worrying exactions of professional duty. It may furnish fit employment for the aged and the invalid.

But, in order to revive the business, to render it compensating, and to cause it to advance with steady pace, the establishment of a periodical paper, devoted to its interests, is highly important. In a country so extensive as this, where general Apiarian Conventions have not yet become customary, and beekeepers can seldom have personal intercourse with each other, a medium of communication, affording facilities for discussion and frequent interchange of opinions, is evidently needed. Such a medium, for those engaged in congenial pursuits, the "American Bee Journal" is intended to be; and such, with the aid and support of those for whose benefit it is specially intended, it may speedily become.

It will serve, likewise, as a repository of whatever is, directly or collaterally, of practical value in this department of rural economy; and as a vehicle by which information can be readily, rapidly, and widely diffused, so that the early introduction of useful improvements may be secured. Such a periodical, will tend also to increase the number of apiarians, and thus make bee culture a business of more general importance, demonstrating, finally, that a vast and seemingly inexhaustible source of national wealth has hitherto been greatly neglected.

It is not proposed to give the Bee Journal a predominantly scientific cast. Aware that to be extensively useful, it must adapt itself to the wants of the community, it will constantly regard that object. Its contents must be diversified. Its columns must be accessible alike to the apiarian, whose experience and observations enable him to communicate information, and to the inquirer whose primary desire is to obtain instruction.

But while aiming to render bee culture more popular, and foster its extension, the Bee Journal will endeavor to attract to it the attention of professed students of natural science, and such may be assured that it is a subject worthy of their powers. That which engaged the faculties of a Columella, an Aristotle, and a Celsus, among the ancients, and of a Swammerdam, a Reaumur and a Huber, among the moderns, cannot certainly be devoid of attraction for an inquiring mind. It possesses fascination enough to engender even enthusiasm in its votaries, and much as has latterly been accomplished in the elucidation of obscure points, there remain mysteries enough to be explored and explained, to employ the most astute intellect.

It is surprising, indeed, that the physiology and natural history of the honey bee have been made the subject of original investigation in so limited a degree by American naturalists. What has been done in that direction in this country, was done almost exclusively by men who commenced simply as apiarians; and nearly all that is to be found in treatises purely scientific, is a mere rehash from foreign publications substantially antiquated. This fact is not creditable to American genius; and now that a Leuckart, a Von Siebold, and a Donhoff, in Germany, have set the example of renewed personal investigation, it is to be hoped that this inviting field will no longer be left unexplored by congenial minds here.

In conducting this Journal, our aim will be to promote bee culture as a systematic practical pursuit, based on established principles and ascertained facts. In furtherance of this object, while we invite and will give scope to full and free, yet temperate and courteous discussion, we shall unreservedly, as occasion may require, express our own views and convictions—striving to place before the reader, the information requisite for intelligent judgment, on any topic that may claim attention or deserve notice.

We conceive that we have the means to render the Bee Journal both interesting and instructive; and our endeavor will be to make it not only a welcome visitor, but a valuable and reliable counsellor. It must, however, not be supposed that the paper is designed for those only who purpose engaging in bee culture on an extensive scale, and adopting the methods and processes so highly appreciated abroad. It contemplates more general usefulness, and will address itself with equal earnestness, to that much more numerous class, whose operations are necessarily restricted within narrower limits.

The most certain means of securing progress, are to be found in that which will enable common bee keepers, who still use only the simple straw, to prosecute the business with due success and satisfaction—thus inducing them finally to join in the march of improvement. Hence, all, and such especially, are invited to communicate with us freely, stating any difficulties they may have to encounter, or any vexations they may experience in this pursuit giving us an account of their own peculiar methods and manipulations; or relating whatever of new or strange, in this department, comes under their notice—their joys and sorrows, as apiarians; their successes as well as mishaps.

Our desire is, of course, that beekeepers, generally, would become readers and correspondents of the Journal; and that each should regard it, for himself, as a medium of imparting, as well as of receiving information. We ask them to send us their queries, their suggestions, their remarks, and their criticisms, as well as the results of their reflections and experiments. Let them here record their observations, and relate their experience; and much that is valuable cannot fail to be elicited for the general benefit. Let them derive a hint from their favorite insect, which by concord and co-operative industry, insures the prosperity of the colony.

Prices of Honey Then and Now—Why the Difference?

From November 23, 1905.

By G. M. Doolittle

This will be read with interest along with the market page in this issue. It is the old question of prices just as we have it today.

IN the latter '70's a beekeeper called on me, and soon our conversation turned on the price of honey, as the month of the year was August, and both he and myself had taken off quite a crop of white comb honey. I asked him what he thought the price would be that year, and without hesitation he said 25 cents a pound.

As I had counted on not more than 20 to 22 cents, I asked him on what he based his ideas of prices. His reply was as prompt again, "On the prices which butter is bringing in market."

I said, "What makes you compare prices of honey with butter?" His reply was that he had "been in the bee business longer than I had," and that "he had noted for the past 20 years that the price of honey and butter had not varied more than a cent or two in all that time."

He then told me of corresponding prices before the war, and cited me to what I knew of the high prices of the latter '60's and '70's, when both butter and honey sold from 30 to 50 cents per pound, which I, of course, could not dispute. And, sure enough, I sold my honey that year at 25 cents. **But with the '80's came a change, and the price of butter outran that of honey by 1, 2, 3, 4 and 5 cents, while the difference in price has been widening ever since.**

A few days ago a neighbor of mine took his crop of honey to the city where he had sold it a few days before by sample at 10½ cents on an average, he having a crop of over 1200 pounds. And this honey was fully as good on the average as was my crop in 1875, when I was paid 28½ cents per pound for my whole crop. Nor is my neighbor a poorer salesman than myself.

Well, what about the price of butter today as compared with the price of 1875?—20 to 22 cents now with 28 to 30 in 1875.

Then in 1875, when I was drawing my honey to the city at 28½ cents per pound, I would stop on my way home and put on a load of coal for our winter's fuel, and the price was $3.50 a ton. Now with 10½-cent honey I have to pay $6.45. And I can do no better with these matters, try as hard as I can.

Again, in 1875 I was trustee in our school district, and with honey at 28½ cents per pound I hired a teacher for our school at $3.50 a week, she to teach on every other Saturday, or 5½ days to the week. Today, with honey at 10½ cents a pound we have to pay the teacher for this same district $9.00 a week, and she teaches only 5 days for a week, and a short 6 hours for each day.

But I hear some one saying, "Why don't you sell your honey at home, peddling it out at better prices?" I have sold some in this way at 12½

(Please turn to page 18)

From Rag Rolls to Modern Smoker

By James C. Dadant,
linois.

It wasn't possible to find a single article in seventy-five years of the Journal which gave a good idea of the development of the smoker so it has been made into a review. We expect to publish reviews on important historical subjects during 1935.

EVERY beekeeper, while handling his bees, realizes the necessity for an efficient smoker. Too many of us have, in some remote apiary, been confronted by the staggering fact—no smokers on the truck. Lacking the resourcefulness of our ancestors who never heard of smokers, we turn back and cover the ten or twenty miles to town in order that the work of the day may proceed. Beekeeping without a smoker is unheard of in these degenerate days.

It does not seem credible that before 1877 no smoker of thoroughgoing practicality had been invented. It is true that in Europe in the preceding century a simple bellows was used to blow smoke into the hive, and at the beginning of the nineteenth century a type of bellows smoker was in use in Germany; but it was a contrivance very long and awkward and it did not hold fire. However, the fact that it incorporated a bellows in its principle of manufacture anticipates the modern device for smoking bees and is worth mentioning for that reason.

The practice of smoking bees is so ancient that the date of its inception cannot be set. One might hazard that it is as old as beekeeping; but in all probability it is older. The singular devices for introducing smoke have of course been more numerous than are recorded. Individuality of idea, of preference and of adaptability have produced hundreds of appliances each then calculated and proclaimed to be the very best yet invented. In the beekeeping periodicals of the latter half of the nineteenth century these inventions are noticeably reflected. In such periodical literature in English we cannot go back further than 1861 which is the date of publication of the first issue of the American Bee Journal. Not until 1867 does the subject of smoking bees come to editorial notice, but in June of that year a subscriber writes:

"Mr. Editor: I wish to call your attention to the subject of taming bees with smoke. I use rotten wood, such as you can break to pieces with your fingers. That called dry rot is best. With a little care it will burn without a blaze. To use it I take a common fire shovel with a little fire on it and lay some of the rotten wood on it and then blow the smoke into the entrance of the hive. I am opposed to using tobacco and puff ball and old rags; they are too sickening and disgusting."

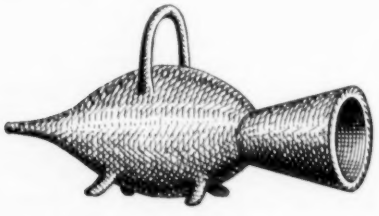
From this time on one finds notice after notice from different correspondents each of whom wishes to assert his own particular ideas about "taming bees with smoke."

In the issue of July, 1867, this letter appears:

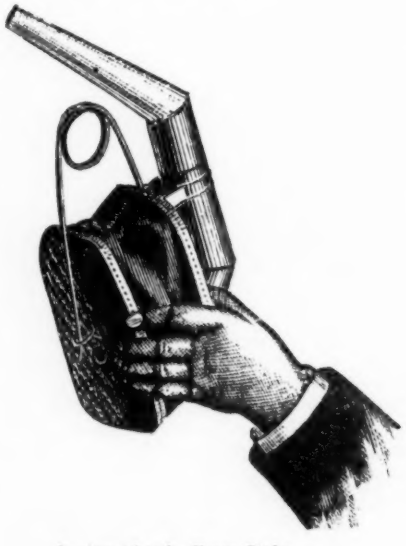
"A correspondent in the June number mentions sticks of rotten wood as the best material for smoking bees. Not being able to use a cigar just now, I have a substitute which I find both the most efficient and convenient smoker. A piece of half worn cotton or linen goods about a foot square is made into a tolerable tight roll and well tied or tacked in three or four places. When one end is fairly lighted, it will continue to burn until consumed unless carefully put out. With this I open hives, take out frames and perform all usual opĕrations without protection for hands or face. The material is plentiful in every house, the roll is made in a moment, lasts a long time and is always ready."

Thus it goes from month to month. One subscriber vouchsafes an idea; another contradicts it or substitutes one in its stead. There are different suggestions for burning rags. One correspondent has a simple device for burning both rags and rotten wood; another rolls corn silk in paper. All of these materials undoubtedly made an excellent smoke, but they were not satisfactory for these reasons: they soon went out; the operator became very fatigued by the time he had blown smoke, with the power of his own lungs, into some twenty-five hives; the smoke could not be satisfactorily directed into the part of the hive where it was most needed.

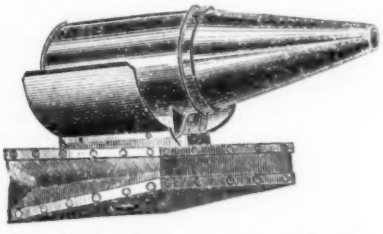
Although this furious agitation concerning the taming of bees did not of



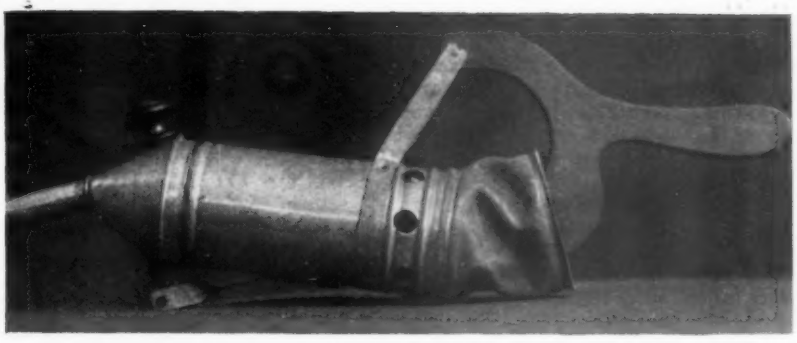
A real early type from Europe.



A step ahead. From Italy.



It looks like a mixed edition of today's smoker.

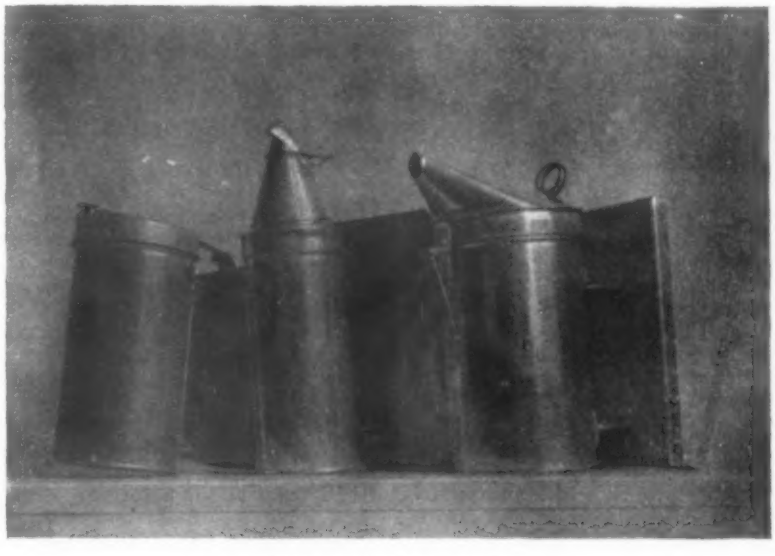


Another one from Italy.

itself produce any astonishing results it did influence one gentleman so markedly that he contrived an engine which is the forerunner of our modern smoker. That gentleman, as many people are aware, was the famous beekeeper and contemporary of Langstroth—Moses Quinby. At frequent intervals in his contributions to the American Bee Journal, Beekeepers' Magazine and other publications for which he wrote a great deal, Quinby laments the popular aversion to beekeeping because of the "foolish and widespread fear of stings."

In his book he describes his own invention which is not much more practical than the scores of other devices invented about the same time. But it is important because it led him to a later and more significant development of the smoker.

"Get a tin tube five-eights of an inch diameter, five or six inches in length; make stoppers of wood to fit each end, two and a half or three inches long, tapered at the ends. With a nail-gimlet make a hole through them lengthwise; when put together, it should make a notch, that it may be held with the teeth, which is the most convenient way as you will often want to use both hands. When ready to operate fill the tube with tobacco, ignite it, and put in the stoppers; by blowing through it you keep the tobacco burning, while the smoke issues at the other end. This requires blowing almost constantly to keep it burning."



Steps up to today's smoker.

The last mentioned difficulty—the inability to maintain a steady fire without a constant blast of air—is one which Quinby was never able to overcome even in his adaptation of the bellows some years later.

L. C. Root, son-in-law of Moses Quinby, says:

"In 1873 Mr. Quinby gave the matter very particular attention, which resulted in the invention of the upright bellows and tubes which has since been known as the 'Quinby Bellows Smoker.'"

According to this statement Quinby did not develop his smoker at all from 1855 to 1873. In the edition of 1865 of the Mysteries of Beekeeping there is no alteration of the paragraphs dealing with the smoker. We may say, then, that the actual development in the bellows smoker came sometime during the years between 1865 and 1873, probably well along toward 1873. In 1874 the new "Quinby Bellows Smoker" was marketed for the first time, and in that same year Quinby writes in the American Bee Journal:

"When I first read on page 106 the heading 'A New Smoker' I thought 'a contrivance for smoking bees' had reference to the way smoke was applied. Instead of a new way of applying smoke it seems that only the material he intends to make it of is new. . . . How to apply smoke conveniently and effectually without blowing the breath away has long been a study with me. Anyone that has a convenient method would confer a favor on the beekeeping public by making it known."

Although his smoker was superior to any then known, he did not consider it a perfect article. However, he shows a certain amount of well-deserved satisfaction in his device in an article published in 1874 after the introduction of the smoker. He says:

"The accompanying cut will give a pretty correct idea of the instrument

Inside the modern smoker factory.

I use for the purpose [smoking bees]. The bellows is worked with one hand, and the smoke forced from the point in the direction where it is wanted. Make, or get one, and you will be surprised at the apparent improvement in the disposition of your bees."

This article is the first formal introduction of his smoker to the public.

In April, 1875, just before his death, Quinby writes in the American Bee Journal:

"I think I have helped some in this matter [avoiding stings] in the smoker given to the public, even though my suggestions cannot be fully carried out in regard to careful handling."

This completes Quinby's contribution to the solving of the problem of "taming bees with smoke." His advance toward the solution was far beyond any made until 1875, the year of his death. There yet remained one important obstacle to overcome in the manufacture of a satisfactory smoker. As yet no one had been able to keep the fire burning in the fire pot without expending an enormous amount of energy.

In the American Bee Journal for March, 1877, there appears among the advertising pages this small insertion under a modest heading, "Bingham's Smoker":

"Bingham's New Smoker is made on a new principle and operated with a small square, one-hand bellows.

"Bingham's Smoker burns any dry, hard wood and does not go out.

* * *

"Bingham's Smoker never gets out of order or foul.

"Parties ordering in March will be supplied. No smokers will be sold till April, 1877.

"One smoker, with directions how to use, will be sent by mail, April 1st, on receipt of $2."

Thus the beekeeping public was notified for the first time of a new smoker destined to play a large part in the shift of beekeeping from a small, almost philosophic undertaking to the great commercial enterprise it has now become. In July, 1877, Bingham denies in the columns of the American Bee Journal the advanced similarity of his smoker to the Quinby engine. As a matter of fact the two were much the same in appearance. The great difference and the one which caused the Bingham smoker to become more popular and the Quinby smoker to receive less attention was the introduction to the principle of the direct draft, that is, forcing the air through the ignited mass, of a very simple break in the connection between the bellows and the fire pot. This break allowed air from the outside to be admitted when the bellows were not in action, and the consequent draft maintained the fire.

The idea had been advanced and most beekeepers believed that a cold smoke was essential to maintain the docility of bees. A hot blast forced into the hive would, they thought, arouse the bees' anger and make handling them impossible. In theory, then, the air should enter the fire pot above the heated mass and thereby blow out cold instead of heated smoke. By simultaneous tests it was seen that smoke from the direct-draft type of smoker was practically as cold by the time it reached the hive as that from the cold-draft smoker. However, in 1879, in response to the demand, Bingham offered the "Bingham cold-draft, cold blast combination."

Professor F. J. Cook writes:

"The advantages [of the cold-blast smoker] are cold smoke, a cool fire tube, and less danger of blowing out fire among the bees. The danger is that the generation of smoke cannot be made at once equal to the fury of a hive of intractable hybrids."

That same year the American Bee Journal comments editorially:

"Mr. Bingham has adapted it [the cold-draft principle] to his smoker in an excellent manner, giving a lining to the stove, where most exposed to the heat, thus adding to its durability.

"The smoker we are glad to notice has been strengthened in all its parts. It is a pleasure to note that whatever improvements the smoker may undergo, Bingham maintains its standard of excellence."

News of the acceptance of the Bingham abroad came in that same year from an American correspondent traveling in Europe. He writes:

"The Bingham smoker was not in the competition at the various honey and bee shows of England, but we took some of them for Mr. Bingham and exhibited them and they were universally acknowledged to be the best things known to those who saw them. So much are they admired that some exact copies of the smokers are being made in England now."

"The smokers display [at the Austro-German Congress at Prague in September, 1879] was very large, but they were mostly cumbersome and clumsy machines, nowhere to be compared to the three Bingham bellows smokers exhibited from America."

In two years the Bingham smoker had been accepted with astonishing rapidity. This fact is indicative of the great need that was felt for a reliable bee smoking device.

Here concludes this brief history of bee smokers. At this point one is tempted to speculate on what might or might not have happened to the beekeeping industry had not the smoker made its appearance when it did. But speculation is at all times extremely hazardous business. T. F. Bingham, himself, in an article about himself makes this interesting comment:

"Had Father Langstroth possessed such an implement for managing bees while his patent was in his own hands, it is safe to say that his hive and system of management would have been more easily introduced to beekeepers, and that intelligent apiculture would have been very greatly promoted."

Prices of Honey

(Continued from page 15)

cents, but an entirely country place will take only a small part of the honey produced by 3 or 4 apiarists residing within 5 miles of each other. Then I must pay $2.00 a day for any help I must hire to do work while I am peddling, and this would require an average daily sale of 100 pounds to meet the wages of hired help, while this help would not work to nearly as good advantage as I could, so that as far as finance is concerned, it is just as profitable for me to sell at 10½, and draw my whole crop off in a day, as it is to peddle it out at 12½ with a daily average sale of 100 pounds.

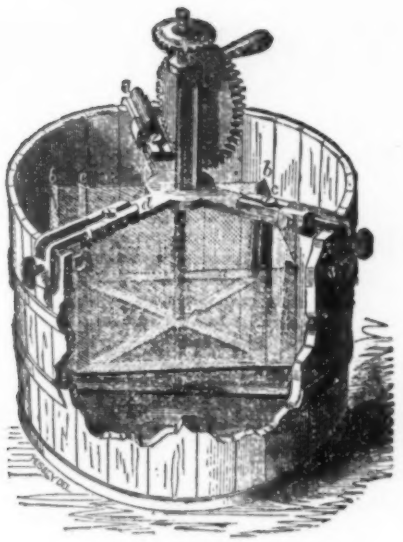
But why talk about peddling? In the '70's buyers came to my door seeking the whole crop. Now I am compelled to peddle, and strain every nerve possible to get less than one-half for my crop what I could in the '70's in bulk, while, on the other hand, I still continue to go after my butter, coal and school-teacher, with the butter but little lower, and the coal and teacher costing more than double what they did in the '70's. It costs me 2 pounds of honey to get 1 of butter today, while in the '70's it was pound for pound. In 1875, 100 pounds of honey would buy 8 tons of coal. Today it will take nearly 500 pounds of honey to buy the same. And when it comes to hiring the district school-teacher a still larger proportion of my crop of honey must go. In fact, I do not know of a single item along the line of those I must have to give me a comfortable living that is as low in proportion as is the price of comb honey, at the present time. Sugar comes the nearest to it.

And the public mind has seemed to change along this sugar-and-honey line, for, contrary to the '70's, I hear people arguing now that with the 10½ cents they must pay for 1 pound of honey they can get 2 pounds of sugar. Then to this sugar they can add 1 pound of water, and thus have 3 pounds of sweet of about the consistency of honey, which (especially where some of the nicer-flavored C sugars are used) they would just as lief have as the honey. And thus they conclude that they can not afford honey, unless, perchance, it is a little as a luxury to put on the table for company. So in this we are having an underconsumption of honey, which, in effect, is the same as an overproduction, which always means low prices.

Honey-Emptying Machine

From April, 1868.

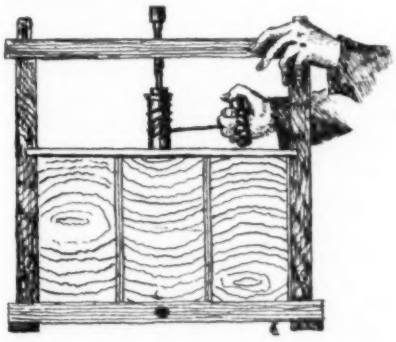
By L. L. Langstroth and Son



Langstroth's extractor.

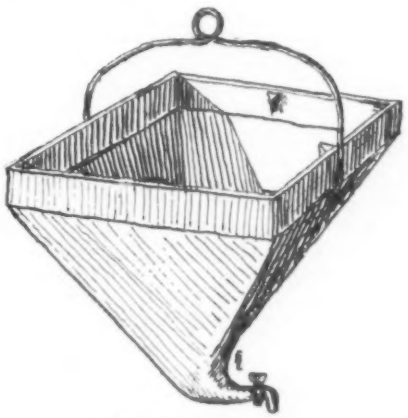
WE, last year, made the following announcement in our circulars: "A plan has been devised in Germany for emptying honey from the comb, without injuring the comb, or removing the beebread or any other impurities. By returning the emptied comb to the bees, the yield of honey, in favorable seasons, may be largely increased. An improvement on the German machine for effecting this object, has been devised and patented by L. L. Langstroth and Samuel Wagner, which will soon be thoroughly tested, so that the machine can be offered for sale the coming season."

Owing to constant demands on our time in other directions, the first machine was not ready for use, until the middle of June. We had sent to purchasers about the first of May, a large number of queens reared the previous season, and as the yield of honey from the fruit trees and the locust blossoms had been very abundant, the combs, in many of the hives, were so filled with honey that the young queens had very few cells in which to deposit their eggs. In this state of affairs the machine was at once called into play; four, and even six, of the heaviest combs were taken out, the uncapped cells emptied, and the combs returned.



The first slinger.

During the course of this work, we found that sealed brood in the combs was uninjured by the process of emptying, that the eggs in the cells were undisturbed, and that pollen, freshly deposited, remained in place; but that all the honey uncapped, and all the young larvae in the cells uncapped, made haste to quit the comb when once the machine commenced to work.



Hruschka's extractor.

An apiarian friend, whose articles have often added interest to the columns of the Journal, being soon after on a visit to our apiary, saw the machine and devised a plan for making it lighter, simpler, and cheaper, and at the same time equally adapted to most of the ends sought to be attained. Our original machine, of which a cut is annexed, which will serve to give an idea of the principle on which we work, (viz: centrifugal force), had two ends in view: one to allow of the reception of comb frames of different sizes, the other, to allow of the use of different sized barrels or receptacles. To accomplish these ends, it had been made of iron, with numerous bolts, pillars, screws, etc. In the modified machine, the patented features are dispensed with, a barrel being furnished with each apparatus, and the comb-holder of wood, being made large enough to hold the Langstroth frames used in hives not over ten inches deep. Smaller frames, or pieces of broken comb, can as readily be emptied.

This modified style we have thoroughly tested, and found to work to our satisfaction. With it, two full combs, in our frames, can be emptied dry and clean, in less than three minutes after the cells are uncapped. This uncapping was at first a very difficult process, until we had a knife made expressly for the work; this knife needs to be frequently dipped in boiling water, to prevent clogging of the edge.

After a little practice nearly every cell can be readily uncapped by this knife, without materially injuring the comb, which can at once be returned to the bees.

Having already made this communication longer than was intended, we will only add that since the first day of December, we have emptied successfully all our full combs secured as surplus, and that the honey obtained from these combs, many of them black from long breeding, and more or less stored with beebread, was of good color, and possessed the peculiar, delicate flavor which would have been destroyed if the comb had been subjected to either heat or pressure. We found no difficulty in selling this honey at wholesale, put up in "glass screw-top fruit cans," side by side with the finest box honey, for only a few cents less per pound. For table use, in all except the mere show made by white comb, it is far preferable to honey in the comb.

The Extractor vs. Honey Boxes

From June, 1874.

By C. R. Isham

A GREAT many experienced apiarians are advocating the exclusive use of the extractor for obtaining surplus honey, speaking of boxes (with them) as things of the past and looking upon those who use them as inclined to "old fogyism."

In this age of the 19th century, progress and improvement are the watchwords; are we not then a little too much inclined to go after things of the "new idea" order—throwing up our hats every time we hear of anything in bee culture which strikes us as being a deviation from the old path—running our apiaries upon windmill principles — talking about barrels and hogsheads of honey to be secured the coming season in spite of drouth or storm, when in fact our stocks are daily diminishing in numbers, and it is only by exercising the greatest vigilance that we can prevent the native blacks from running out our pet Italians.

That the extractor is an indispensable article in a well managed apiary, probably all acquainted with its working will admit; but that beautiful comb honey is to be supplanted by the extracted article will only take place when the eye hath lost its admiration for beauty, and fancy and style have nothing to do with the sale of this staple luxury.

So long as the idea of crushed bees and other impurities is connected with the sight of strained honey, just so long will that put up in fancy boxes continue to command the higher price.

Were all honey raisers the coming season to run their apiaries exclusively for extracted honey, and the season be as good as was the past, I fear our markets would be glutted and the crop find, at wholesale, a price but little above that of ordinary strained. The low price at which it was quoted the past fall and winter in the principal places of consumption throughout the country I think will bear me out in making this prediction.

While honey in glass boxes in New York was quoted at from 30 to 35 cents a pound, wholesale; extracted and strained was only put down at from 12 to 15 cents a pound. To be sure we sometimes get a better price for it when put up in jars, but how are we to keep it from hardening? In the language of D. W. Quinby, commission merchant, handling large quantities of honey, and brother to M. Quinby, "it soon candies, looks like lard and doesn't sell." I have a doubt as to whether these advocates of the slinger theory believe they obtain as nice an article by using the extractor, as that stored away, evaporated and sealed by the bees themselves. Has it the luscious richness to the taste? I have heard good judges of honey say it has not.

For example, take from the box a flake of white comb honey built just the right size to fit a small plate, and it is of itself an ornament even to the table of the rich and will tempt the palate of an epicure. Slice that comb up into small squares to be passed to each individual, and can anything in the shape of liquid honey excel, or even compare with that which drains into the bottom of the dish from the severed cells—clear as water from the limpid spring—aromatic as the flowers from which it was culled—tempting to both eye and taste and pure as ever are the unadulterated productions from nature's laboratory.

The symmetrical beauty in the structure of the comb, each tiny cell a perfect hexagon and solving a mathematical problem in Euclid, furnishes a subject for conversation, and all are ready to praise the industry of the little bee endowed with such wonderful instinct. No wonder the old poets sang to its praise; for the product of its labors furnished an article of export from the islands of the Mediterranean to an extent beyond anything we hear of in these modern times of imported queens and honey slingers.

I do not make these comparisons in a fault-finding spirit, but merely to look the subject square in the face without ignoring what others have done before us.

For the past few winters beekeepers have had a serious difficulty to contend with and I fear the advantage gained in building up swarms by the use of the movable-comb frame is more than offset by disastrous losses in wintering, and a close canvass would probably show that in the United States there is not more than one beekeeper where there were ten several years ago, **and is not this loss often greatly endangered by the too free use of the extractor, often leaving hives in a starving condition at the close of a good season?**

Some of our largest raisers and shippers of box honey are among those who do not report their experience through the bee journals.

A few years since Capt. J. R. Hetherington of Cherry Valley, in this State, sent to New York market 25,000 pounds of box honey "as reported" of his own raising. The same fall Baldwin Bros., of Sandusky, N. Y., shipped to the same market 10,000 pounds, mostly from their own apiaries, although at the same time extensively engaged in raising Italian queens for sale.

I was informed by a commission merchant that a firm in Steuben Co., made one shipment of five tons. Besides these large quantities there were a great many smaller lots varying from 500 to 5,000 pounds yielding to the producer an income of no mean significance. The same course has been pursued every fall since, except perhaps not on quite so extensive a scale. Could the managers of these apiaries be induced to give their experience through the columns of the bee journals, what an amount of testimony would be given in favor of using boxes, besides adding a large amount of practical information to their columns already so replete with useful knowledge. It matters not how large may be the crop if we have our surplus in suitable shaped, four-sided glass boxes, it will find quick sale at good remunerative prices without return or loss of barrel, as box honey in this shape sells at gross weight without any question, the boxes often paying 100 per cent above cost of manufacture. We are well aware that glass weighs heavy, yet consumers want it in this shape and are willing to pay a fancy price for a fancy article, and in this case it pays better to let them have their own way, and not be quarrelling about tare on old wooden boxes. The season for 1874 is now at hand, and as many apiaries will be run almost exclusively either for box or extracted surplus, I hope at its close those of us whose lives are spared will have the benefit of a good many favorable reports pro and con; yet with many others I am loath to believe that fancy box honey will ever be supplanted by the extracted article.

Early Importations of Italian Bees

From March 16, 1881.

By Rev. L. L. Langstroth

L. L. Langstroth

I CAN probably give, better than any one living, the history of the first efforts made to introduce Italian bees into this country; as I knew well the late Messrs. Samuel Wagner and Richard Colvin, and Messrs. S. B. Parsons and P. G. Mahan, who, with myself, were the first to import them. Messrs. Wagner and Edward Jessop, both residents of York, Penn., received from Dzierzon, in 1856, a colony of Italian bees which had starved on ship-board. Mr. Wagner's letter to me, August, 1856, and given the next spring, in my 2nd edition on bees, is the earliest notice, published in this country, of the Italian race of bees. Messrs. Wagner and Colvin, subsequently, bought a few queens of Dzierzon, which were consigned to the care of the surgeon of a Bremen steamship, who had been carefully taught what precautions to use for their safety. Fearing that the bees might sting his passengers, the captain would not allow them to be put on his vessel.

"In the winter of 1858-59," (I quote from Mr. Colvin's able article on beekings, in the Report of the Commissioner of Agriculture for 1863, page 530,) "another attempt was made by Mr. Wagner, Rev. L. L. Langstroth, and myself. The order was placed in the hands of the surgeon of the steamer, to whose charge the bees were to have been committed, but in consequence of his determining to leave the ship, the effort failed*. Subsequently arrangements were made, in the latter part of that year, and we received 7 living queens. Only two or three young queens were reared by us during that fall and winter, and in the following spring we found that all our imported stock had perished. In conjunction with Mr. Wagner, I determined to make another trial; the queens, however, did not arrive until June, 1860."

Our queens, which came in 1859, were in charge of a German resident of Brooklyn, N. Y., who was returning home from a visit to his friends, and to whom Mr. Wagner had given very careful directions how to care for them. This person, learning that Mr. Mahan had expressed the intention of having the honor of landing, in America, the first living Italian bees, and desiring, as he told me, to secure this honor for us, communicated Mr. Mahan's intention to the captain, who, as soon as the gangway was in place, was the first person to step ashore, proclaiming with a very loud voice: "These are the first Italian bees ever landed on the shores of America!"

In the spring of 1856, Mr. S. B. Parsons, of Flushing, L. I., invited me to visit him, and advise with him as to the best way of managing his Italian bees. On my way, I called upon Mr. Mahan, who was joint owner with me of a large interest in my patent hive. He gave me a very graphic account of his visit to the apiary of the Baron Von Berlepsch, from whom he obtained a queen, and supplied me with a few Italian workers for Prof. Joseph Lidy, that he might determine how the length of proboscis, in that variety, compared with that of the black bee. On arriving at Flushing, Mr. Parsons showed me five hollow logs, or "gums," placed in an old bee-shed. It was a warm, sunshiny day, and I saw only an occasional bee flying out from one of the hives. These colonies had been purchased in Italy, carried safely on the backs of mules over the Alpine passes, to Genoa, from which port they were safely shipped to New York; but by a succession of mishaps, four of them died at Flushing. The fifth contained a mere handful of bees, with their queen, which I introduced to a colony of black bees. It is hardly necessary to say that none of these hives were ever in the same vessel with Mr. Mahan.

On the 18th of April, the steamer Argo arrived in New York, after a tedious and stormy voyage. Mr. Herman, a German beekeeper, and author of a work on the Italian bee, who had been furnished with a large sum of money by Mr. Parsons to buy Italian bees in the best districts of Italy, and who had agreed to bring them over in the original hives, and breed queens for Mr. Parsons, was not on board, but in his place, a young Austrian, by the name of Bodmer. On the 19th, as soon as the bees were allowed to be landed, they were carried to Flushing. The small boxes in which they were put up were in three

*Mr. Colvin, having formed the acquaintance of the German Captain, not only convinced him that the bees could not escape to injure any one, but inspired him with a strong desire to be the first to bring over in his own vessel, this valuable race of bees. It would require quite a volume to tell, at length, what sacrifices of time were made by Messrs. Wagner and Colvin, to secure these bees.

different packages, one of which was consigned to the U. S. Government, one to Mr. Mahan, and one to Mr. Parsons. As the Austrian said that he knew, by examination on shipboard, that the bees were in a very bad condition, and many of them already dead, and, as the day was very pleasant, they were all examined under my personal supervision, and I can assure Mr. Robinson that every colony consigned to the Government and Mr. Mahan, was dead. A few, only, of those marked for Mr. Parsons, had living queens, some of which soon died, and in a short time he found himself the possessor of only two queens, one of which was the queen found alive upon my arrival at Flushing.

By my advice, Mr. Wm. W. Cary, of Coleraine, Mass., a very skillful beekeeper, and a thoroughly trustworthy man, was sent for by Mr. Parsons. One of the queens was entrusted to his care, on the premises of Mr. Parsons, and the other to Mr. Bodmer, some distance off, who did not raise queens enough even to pay for the black bees and honey which were purchased for his use; while Mr. Cary Italianized a large apiary for Mr. Parsons, besides filling all his orders for queens.

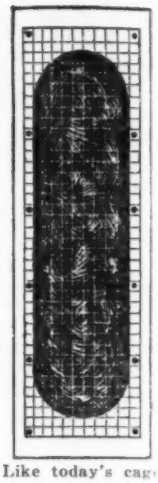
One hundred and eleven queens were carried to California, by Mr. A. J. Biglow, 108 of which reached there in good condition. This small per cent of loss was, in part, owing to the skillful supervision of Mr. Biglow, and to the purifying flight which, by my advice, he gave them on the Isthmus of Panama; but all his precautions would have been of no avail but for the judicious way in which they were prepared by Mr. Cary and himself, for so long a voyage. The bees sent to Mr. Parsons were in cigar boxes, into which the combs were merely crowded or wedged: the loosening of the combs on so rough a voyage killed some of the queens, while others were drowned, with their bees, in honey; and others, still, starved from the boxes being over-crowded with bees. It is hardly necessary to contrast Mr. Biglow's success with the heavy losses sustained for years by those who imported bees from Europe. The result of Mr. Parsons' dealings with Herman were, that for $1,200 advanced to him, he had only 2 queens to show. The next season Mr. Bodmer, having learned how to pack bees for a sea voyage, brought over a number of queens in good condition, for Mr. E. W. Rose, but was very unfortunate in the management of them. Herman came, some years after, to this country, and was employed by a friend of mine in Philadelphia, to purchase for him, in Italy, a large number of queens. The return voyage was long and stormy, and every queen died on board the steamer.

Origin of Sending Queens By Mail

From August 31, 1881.

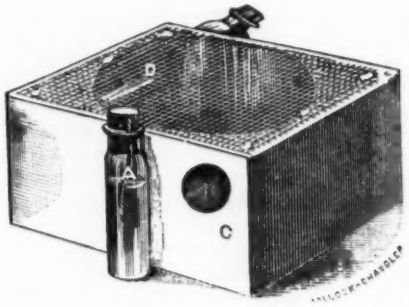
By C. J. Robinson

These two articles, "Sending Queens in the Mail" and "Shipping Bees By the Pound," tell of the beginning of two movements which have done much to broaden the horizon of American beekeeping.



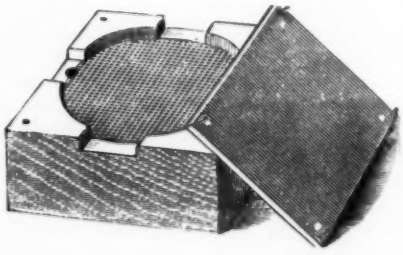
Like today's cages

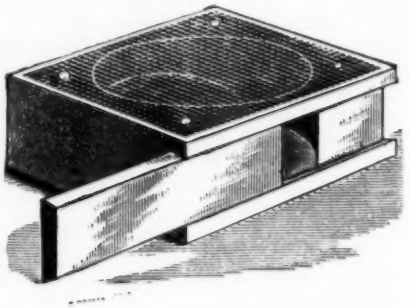
IT appears that some of the enterprising queen breeders deem it very important that queen shipping cages have many distinct features to render them suitable in the highest degree. The essential features of such a cage are quite simple—only to afford bees the conditions requisite, as I learned from experience before any other party ever mailed a honey bee. My humble self has the credit of being the original shipper of queen bees by mail transit. It was from necessity that I devised the mode of transporting queens through the mails, and contrived a shipping cage.



First type of queen cage.

In 1859, when the Italian bees were first imported, up to July, 1862, I was receiving queens from J. P. Mahan, of Philadelphia (the first successful importer of bees), and also from others, including Rev. L. L. Langstroth, who shipped by express. At that time no express office had been established at this point, and I was bothered to get packages from the office in due time. I wrote to Mr. Langstroth, asking his opinion on the feasibility of sending queens per mail. He answered, signifying that he deemed the plan impracticable. Still I was bent on trying the experiment, and caged a black queen in a package, which I addressed to Mr. Langstroth and mailed it. In due time the queen, with a few workers, arrived at Mr. Langstroth's post office all right. Then Mr. L. contrived a cage, in which he put a fine Italian queen, with a few workers, and mailed to my address. When the package came to hand the workers were all dead and the queen died soon after. I reported the arrival and ill success to Mr. L., who contrived a cage different from his first, and sent it with a queen to me by mail. His second attempt proved as successful as my first was. Such is the history of the origin of transporting queens through the medium of the post office department.





Both of these show an improvement but they are clumsy and less efficient than the three-hole cage now used.

Selling and Shipping Bees by the Pound

From January 6, 1886.

By E. M. Hayhurst

While this was written in 1886, the general practice of shipping bees did not become common until seven years later. What a difference there was between the horse and wagon days and the modern dual wheeled transport of 1935!

One hundred pounds of bees ready to go! It seemed quite a shipment in the early days.

THE possibility of shipping bees without hives or combs, was first brought to the attention of the beekeepers by an editorial in Gleanings for May, 1879. In this editorial, Mr. Root suggested the use, as a shipping cage, of a common dish-screen, provided with a wooden bottom and supplied with candy and water. Soon after reading this, I prepared a half-pound of bees and a queen, as thus suggested, and sent them to Mr. Root as an experiment. They were received without the loss of a single bee. This settled the matter with me, that bees could be sent safely in this way, if all the conditions were right.

I sent a number of half and one-pound packages that season, with good success. The dish-screen was soon abandoned for the much more convenient section-box and wire-cloth cage, as advised by Mr. Root in Gleanings for June, 1879. Here I would like to call attention to the fact that our common friend, Bro. Root, is father of this business, and that nearly every advancing step made by his now healthy "youngster," has been made at his suggestion.

Without detailing to you the many heavy losses and great discouragements which I met with during the following three years, and owing to which I very nearly abandoned the business as ruinous, I will state that I now have the matter so well under control that it is as safe and profitable to me as any other department of beekeeping.

I still use the well-known section-cages, each being crated so as to protect it somewhat from accidents. When a number of packages are to be sent to one address, several of them are placed in one crate; I have sent as many as 25 one-pound packages in one crate, but generally I divide large shipments into crates containing 12 or 15 packages. These crates are so arranged as to admit of ample ventilation for each package of bees.

For feed, I use the "Good" candy, made of the best pulverized sugar and clover or basswood honey. This candy enables us to dispense with the water which was necessary with the candies formerly used. When the bees are not likely to be confined

A modern truck load of bees going to the yards. In British Columbia.

more than 24 hours, no feed is really necessary, although a little candy is put into all cages, to guard against possible delays. The proportion used for long distances is about 4 ounces of candy per day for each pound of bees.

I now think that most of my heavy losses in former years were due to over-feeding, or rather, to gorging the bees with honey. I used to be so afraid that they would starve, that I would feed them all the honey that they would take, after they were caged; notwithstanding the well known fact that bees when gorged with sweets are much more likely to become panic-stricken when confined, and disgorging, smother themselves. On the other hand, I now use every precaution possible to prevent the bees from filling themselves while being caged. Bees caged without a queen have this same tendency to panics, and will often run themselves to death; hence I send no more bees without queens.

Next to over-feeding, perhaps the greatest cause of losses is the exposure of the bees to the hot sunshine by the carriers; on this account I place conspicuous cautionary cards on each crate, calling attention to this fact. I also send printed "Directions" attached to each crate, for the benefit of the purchasers, many of whom are quite inexperienced in handling bees; these are very necessary, but do not always save the bees. One friend wrote me this season that I had failed to put queens into 4 or 5 packages sent him; he said: "I know this to be so, because all of the bees clustered in one place." Further correspondence developed the fact that after preparing his five hives as directed, he turned all the bees loose at once by throwing them into the open air, expecting each nucleus with its appropriate queen to find the hive intended for it! Another friend lost 3 out of 5 nuclei by turning them into hives containing their full complement of combs, smeared and befouled by the bees that died during the winter, and without giving them any brood to care for. Only two of the lot had grit enough to stay in their new quarters and clean up.

In regard to the profits to be derived from the business: After an experience of seven years, I believe that when we can retail extracted honey at home for 8 or 10 cents per pound, we cannot afford to retail our bees for less than $3 per pound, in May, and assume all the risks now required of the shipper. Probably the persons most benefited by the business, are those who have trouble in introducing queens, and they are not few; to such it is certainly a very great advantage to buy a half-pound of bees with each queen, so as to enable them to obtain the improved kinds without the risk of introducing.

These little nuclei can be made working colonies at once, by giving them 2 or 3 combs of brood and stores (without bees) from other hives. By adding other combs of brood as fast as the bees can care for them, they can be quickly built into full and profitable colonies; indeed 2 or 3 combs of brood and stores, is help enough in ordinary seasons, if the bees are purchased early; and in extra good seasons a half-pound of bees with a good queen will often grow into a fine colony for winter—a small beginning, but not quite so helpless as the one made by one of my neighbors. He sent to me for an untested queen; shortly afterwards he called at my yard and complained that the queen did not do very well—in fact, had deserted her hive. It seems that he had put her with the few bees sent with her in the mailing cage, into a large, cracked box into which he had fastened a one-pound section containing comb, but no honey. He said that there were just 9 bees with her, and that he thought 4 of these were a plenty to stay with the queen while the other 5 went out to gather honey and wax!

At the risk of incurring the charge of being "enthusiastic" in regard to the immense profits to be derived from purchasing bees by the pound, I will close by giving an extract from a letter received from an Iowa customer; it sounds a little extravagant, but it is by no means an uncommon report—he probably had an extra good run of honey. Here it is:

"I kept 11 of those one-pound nuclei, put each into a full-sized chaff hive with empty combs; this is all the help they had, except a little feed when they first came, and a little foundation. They filled up their hives, increased to 20 good, strong colonies, and gave me about 400 pounds of nice comb honey. A swarm from one of them took the first premium ($10) at our District Fair."

How to Prevent Swarming

From April 21, 1892.

By G. W. Demaree

[When this article appeared the fad for small hives had developed serious problems for the beekeeper. Honey crops were small and there was an excessive number of swarms. This article described what came to be known as the "Demaree Method" which was very generally used by small hive beekeepers for a period of about twenty-five years. The principal significance of the suggestion has been overlooked. As a result of this method the small hives soon became large hives because of the adoption of two stories. Thus unintentionally Demaree did what the large hive advocates were unable to do—persuaded the general adoption of the large hive principle while retaining their small hives. Few articles have resulted in such unusual influence upon the beekeeping industry as this short article by Demaree.–Ed.]

WHEN discussing this subject the temptation to argue the question, rather than to rely on a simple description of the manipulation resorted to, to accomplish the object in view, is very great. So many apiarists have imbibed the idea that some sort of contraction of the brood-nest is essential to the production of comb-honey, if not the extracted article, that any new discovery that runs counter to this idea of contraction meets a deaf ear, if not open opposition.

Let me say, once for all, that when a new discovery is applied to an old system, it often becomes necessary to revise the old system to accommodate it to the newly-applied discovery. These remarks apply not exclusively to the old system of bee-culture, but to all systems pertaining to all industries. Those persons who are determined to stick to the old paths of the past, are not in position to profit by any new discovery; and this essay is not written for that class of readers.

When your apiary is as large as you want it, what would you give to be able, by a simple, practical manipulation at the beginning of the swarming season, to hold all your colonies in full strength of working and breeding force steadily through the entire honey harvest? You can do it beyond a doubt, by practicing my new system of preventing swarming; and if you have the ingenuity to apply proper management to suit the new condition, your surplus yield will be larger than by any other method heretofore made known to the public.

I have practiced the new system largely for the past two seasons, and my surplus yield was never so large, though it is well known that the past two seasons were not above the average as honey-yielding seasons.

As I have already intimated, my plan of preventing swarming, and entirely preventing increase, is accom-

plished by one single manipulation right at the commencement of swarming. Only one hive and its outfit is used for each colony. Any system that requires a divided condition of the colony, using two or more hives, is not worthy of a thought.

In my practice, I begin with the strongest colonies and transfer the combs containing brood from the brood-chamber to an upper story above the queen-excluder. One comb containing some unsealed brood and eggs is left in the brood-chamber as a start for the queen. I fill out the brood-chamber with empty combs, as I have a full outfit for my apiary. But full frames of foundation, or even starters, may be used in the absence of drawn combs.

When the manipulation is completed, the colony has all of its brood with the queen, only its condition is altered. The queen has a new brood-nest below the excluder, while the combs of brood are in the center of the super, with the sides filled out with empty combs above the queen-excluder.

In 21 days all the brood will be hatched out above the excluder, and the bees will begin to hatch in the queen's chamber below the excluder; so a continuous succession of young bees is well sustained.

If my object is to take the honey with the extractor, I tier up with a surplus of extracting combs as fast as the large colony needed the room to store surplus. Usually, the combs above the excluder will be filled with honey by the time all the bees are hatched out, and no system is as sure to give one set of combs full of honey for the extractor in the very poorest seasons; and if the season is propitious, the yield will be enormous under proper management.

The great economy of this system is, all the colonies will produce as nearly alike as can well be—a condition of things that never occurs in any apiary swayed by the swarming impulse. If my object is fancy comb-honey, I tier the section-cases on the super that contains the brood, and push the bees to start all the combs they can; at the close of the season I extract the honey from the combs in the super, and feed it back to properly prepared colonies to have the partly-filled sections completed. The nicest honey in sections that I ever produced was obtained in this way.

To feed back successfully, requires as much experience as any other work connected with the art of producing honey, but the theme is too broad for a place in this connection.

The system above described works perfectly if applied immediately after a swarm issues. The only difference in the manipulation in this case is, that no brood or eggs is left in the brood-nest, where the swarm is hived back.

New Bee and Queen Prices for 1935

To all Shippers and Licensees under the Marketing Agreement and License for Shippers of Package Bees and Queens produced in the United States:

THIS communication is an **official notice** to you of a schedule of minimum prices for package bees, nuclei and queens **now effective**, and it is suggested that you read carefully this notice and the attached Exhibit A, said schedule of prices.

You are hereby informed that Section 1 of Article III of the aforesaid Marketing Agreement and Section 1 of Article II of the aforesaid License provide that "the Control Committee shall establish, subject to the approval of the Secretary, a schedule of prices which shall be the minimum prices at which **all shippers and licensees** shall sell, or offer for sale, package bees, nuclei and/or queens following the effective date thereof, and said schedule of prices shall remain in effect until altered, amended or cancelled by the Secretary or by the Committee with the approval of the Secretary."

You are also informed that on November 2, 1934, at a lawfully called meeting of the Control Committee, officially acting as such under the aforesaid Marketing Agreement and License, said Control Committee passed a resolution adopting a schedule of minimum prices for package bees, nuclei and queens, which schedule of minimum prices is hereto attached and designated as, "Exhibit A—Minimum Prices under the Marketing Agreement and License for Package Bees and Queens." You are further informed that the Secretary of Agriculture of the United States, on the first (1st) day of December, 1934, officially approved said schedule of minimum prices to become effective **immediately.**

You are hereby notified that every shipper of package bees, nuclei and/or queens in the United States, whether a signer of said Marketing Agreement or not, is **legally bound** under said License to observe said schedule of minimum prices; and that a failure so to do will constitute a violation of a Federal Law known as the Agricultural Adjustment Act.

It is believed that a faithful observance of this schedule of prices, in the transaction of business, will result in great benefit to the package bee industry, as well as to each and every individual shipper in that industry. Your cooperation, therefore, in making this schedule of prices effective **immediately** will be greatly appreciated.

Very truly yours,
J. M. ROBINSON,
Managing Director.

* * *

EXHIBIT A
MINIMUM PRICES FOR MARKETING AGREEMENT AND LICENSE FOR SHIPPERS OF PACKAGE BEES AND QUEENS.
(Approved December 1, 1934)

Section 1. **Minimum Prices.**—Minimum prices for package bees, nuclei, and queens are hereby established by the Control Committee pursuant to Article III of the Marketing Agreement and pursuant to Article II of the License for Shippers of Package Bees and Queens Produced in the United States; and such minimum prices, until changed, shall be as follows:

1. The price of queens shipped or delivered from Nov. 1 to May 31 shall not be less than seventy-five (75) cents each, postpaid; and the price of queens shipped or delivered from June 1 to October 31 shall not be less than fifty (50) cents each, postpaid. The price of each purely mated queen shall not be less than double the price of each queen, postpaid.

2. The price of each package of bees with one queen, shipped or delivered from November 1 to May 31 shall not be less than the following prices:

(a) For two (2) pounds of bees net, express collect, $2.45 each; and for three (3) pounds of bees net, express collect, $3.15 each. For each additional pound of bees added to such 2-pound and 3-pound packages, not less than seventy (70) cents additional.

3. The price of each package of bees with one queen, shipped or delivered from June 1 to October 31 shall not be less than the following prices:

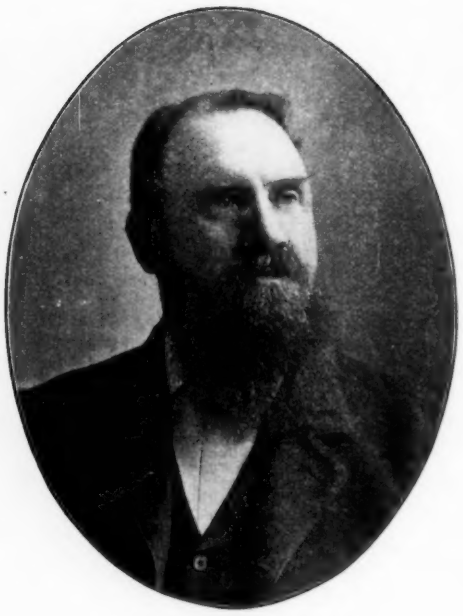
(a) For two (2) pounds of bees net, express collect, $1.95 each; and for three (3) pounds of bees net, express collect, $2.55 each. For each additional pound of bees added to such 2-pound and 3-pound packages, not less than sixty (60) cents additional.

4. When packages of bees mentioned in the above sub-sections 2 and 3 are sold without queens, the price of such queenless packages shall not be less than the minimum prices specified in sub-sections 2 and 3 after deducting the minimum prices for queens specified in sub-section 1 of this exhibit.

5. When packages of bees with queens are shipped by parcel post, the shipper shall charge the purchaser postage and ten (10) cents per package above the prices scheduled in the above sub-sections 2 and 3.

6. The prices of nuclei with one comb, two (2) pounds of bees net, and one queen shipped or delivered from November 1 to May 31, shall not be less than $2.85 each, express collect; and the prices of such nuclei containing three (3) pounds of bees net shall not be less than $3.55 each, express collect. The prices for each additional comb added to any such nucleus shall not be less than forty (40) cents additional to the prices specified in this sub-section for each 2-pound and each 3-pound nucleus; and the prices for each additional pound of bees in each such nucleus shall not be less than seventy (70) cents additional to the prices for such 2-pound and 3-pound nuclei specified in this sub-section.

7. The prices of nuclei with one comb, two (2) pounds of bees net, and one queen shipped or delivered from June 1 to October 31, shall not be less than $2.35 each, express collect; and the prices of such nuclei containing three (3) pounds of bees net shall not be less than $2.95 each, express collect. The prices for each additional comb added to any such nucleus shall not be less than forty (40) cents additional to the prices specified in this sub-section for each 2-pound and each 3-pound nucleus; and the prices for each additional pound of bees in each such nucleus shall be not less than sixty (60) cents additional to the prices for such 2-pound and 3-pound nuclei specified in this sub-section.



GILBERT M. DOOLITTLE

Queens—How Many Eggs Do They Lay?

From August 30, 1906.

By G. M. Doolittle

Master queen breeder and father of scientific queen rearing, Gilbert M. Doolittle closely observed what took place before him. While others may disagree with his statement of the egg laying powers of the queen, it gives figures we all hope our queens able to match.

In the article on wintering on the next page this practical doer also foreruns present day experimental evidence.

A CORRESPONDENT wishes me to tell, through the columns of the American Bee Journal, about how many eggs the ordinary queen of the honeybee will lay. He says he has a neighbor beekeeper who claims that a queen will lay about 100,000 eggs in a year, and when laying that many she will become worthless at the end of the second year. And in his giving the name of his neighbor, I recognize the same as one of our men who is often seen at bee conventions, and who takes an active part therein, so that it may be well to say a few words on this subject, for in such sayings as these harm may come to those not used to thinking and experimenting for themselves in these matters. From such ideas as this, there is little doubt but that the notion has prevailed—which has been so common during the late past—that all queens should be superseded when they are 2 years old.

Now, the superseding of all queens as soon as they are 2 years old is quite a task, even if it were necessary, but when we come to consider that, with the rank and file of beekeepers, most queens are as good the third year as the second, while very many queens prove good the fourth year, unless the apiarist uses such strenuous plans that they are overworked, we see the waste of time it is to go through all this work simply for the reason that some unthinking person (unthinking along this line) has recommended such a course. To be sure, each person should think and act for himself, but most beginners in beekeeping think what they read and hear on apicultural subjects must be right, or very nearly so, at least. Therefore, it is always well to use due caution in writing and speaking, so that we do not give voice to that which is misleading.

Now let us look into the matter a little. I have used during the past as small a brood-chamber as any one in the United States, the same holding only 9 Gallup frames, and having a capacity of about 800 square inches of brood-comb space. This comb is kept pretty well filled from the first of June to the middle of August, or for about 75 days. As there are about 50 cells of worker-size to every square inch of comb, the queen must lay about 40,000 eggs every 21 days (that being the time it takes to perfect a worker-bee from the time the egg is laid by the queen), or about 142,000 bees in the 75 days.

Now all good colonies, when wintered on the summer stands, will begin rearing brood during the month of January, and by taking the average increase of eggs laid from then to the first of June, and the decrease from the middle of August till the end of the breeding season, which is about Oct. 1 with us, we have about 100,000 more, or about 242,000 for the year. If this is the case with a small brood-chamber, it will be seen that still more bees would be reared in a large brood-chamber of nearly double this capacity, such as is used and recommended by the Dadants and others; and how any one man can come to the conclusion that 100,000 is the number of eggs a queen will lay in one year, and that she will be worthless at the end of 2 years when laying at that rate, is something that I cannot understand, only by way of concluding that he is not a close experimenter, or else does not stop to weigh what he says.

With my small brood-chambers queens average good and prolific for 3 years, some doing good work even in their fifth year; but as a few will fail in their third year we will call it only 3 years that they will keep up this rate of laying. This would give 726,000 eggs as the number laid by the queen during her lifetime, on an average, and with only average queens, instead of 200,000 as was given by the beekeeper to our correspondent.

If I am correct, and I believe I am, from many experiments I have conducted, it will be seen that if a queen laid only 100,000 eggs a year, she would be good for 7 years. And if this is so, then we can see the extreme folly in the recommendation to supersede all queens during the fall of the second year of their life.

If we are using a system of strenuous work for the queen, as is the one who uses a 10-frame Langstroth hive, and coaxes the queen to fill every available cell with brood, then there is some propriety in the argument that a queen may not prove good longer than 2 years. With the plan I am now using for the production of comb honey without swarming, using 10-frame Langstroth hives to accomplish such results, the queens in these hives lay nearly as many eggs in 2 years as they will in 4 years in the small brood-chambers of only 9 Gallup frames. But even in this case, the bees take care of the queen-matter very largely, for the Italian bees will usually supersede their queen during August, when she has begun failing, or seems likely to fail before the end of another honey season arrives.

Where any beekeeper lives in a locality in which the bees are liable to hold on to their queens after their usefulness is past, as to the production of eggs, then it would be advisable for him to take this matter in his own hands, and supersede all failing, or those liable to fail, at the proper time. But let each one be sure of the inside workings of the hive, knowing what is going on there, so that he can work as intelligently along this line as he does with his stock of poultry, sheep, cattle, or any other thing with which he is familiar.

It is a strange thing that possesses the heads and minds of most beginners in beekeeping, that they need not be as familiar with the bees as they are with other stock and things. Let us get away from such ideas.

Borodino, N. Y.

Does a Colony of Bees Ever Freeze?

From February 4, 1885.

By G. M. Doolittle

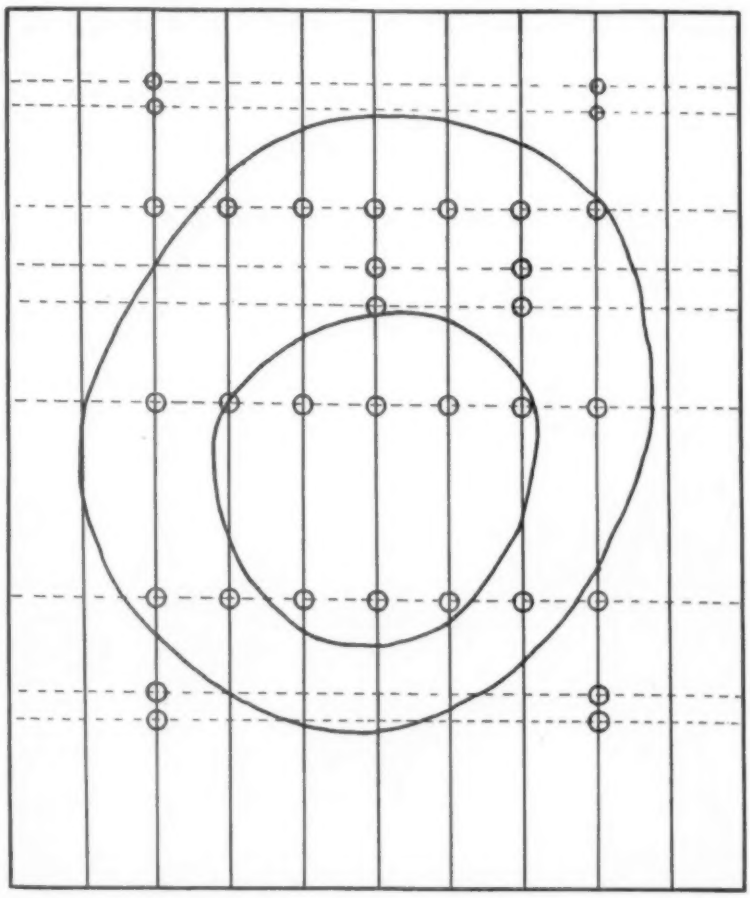
A FEW days ago a friend called in to have a neighborly chat, and as we talked of the recent severely cold weather (the coldest known here for over 15 years, the mercury being 28° below zero), he asked, "Have not some of your colonies of bees frozen to death?" I replied that "I thought not, as I never knew a colony of bees, while in a normal condition, to freeze during any cold weather ever experienced south of latitude 45; but," said I, "we will go out and look, for possibly some of my colonies may have succumbed to the extreme cold."

Purposely I had prepared several queen-rearing colonies for winter, by way of experiment, some being so small that last November they did not contain a common bowl full of bees, and occupied but two spaces between the combs, while others were seen in only three spaces. A part of these were placed in the cellar, and the rest left on the summer stands. Upon going to the bee yard, we first looked at a full colony, which we found to be in splendid condition, the bees being all clustered in seven spaces between the combs, and so quiet that scarcely a bee moved, although the mercury at this time stood at 35° above zero. Upon raising the hive from the bottom board, not over 20 dead bees were to be seen, which proved conclusively, to me at least, that those bees were wintering in the best possible condition thus far, in spite of the extreme cold. Next, we went to a colony which occupied but four spaces, and found them in as perfect condition as the first, although a practical beekeeper had told me, but two weeks previous, that I could never winter so small a cluster.

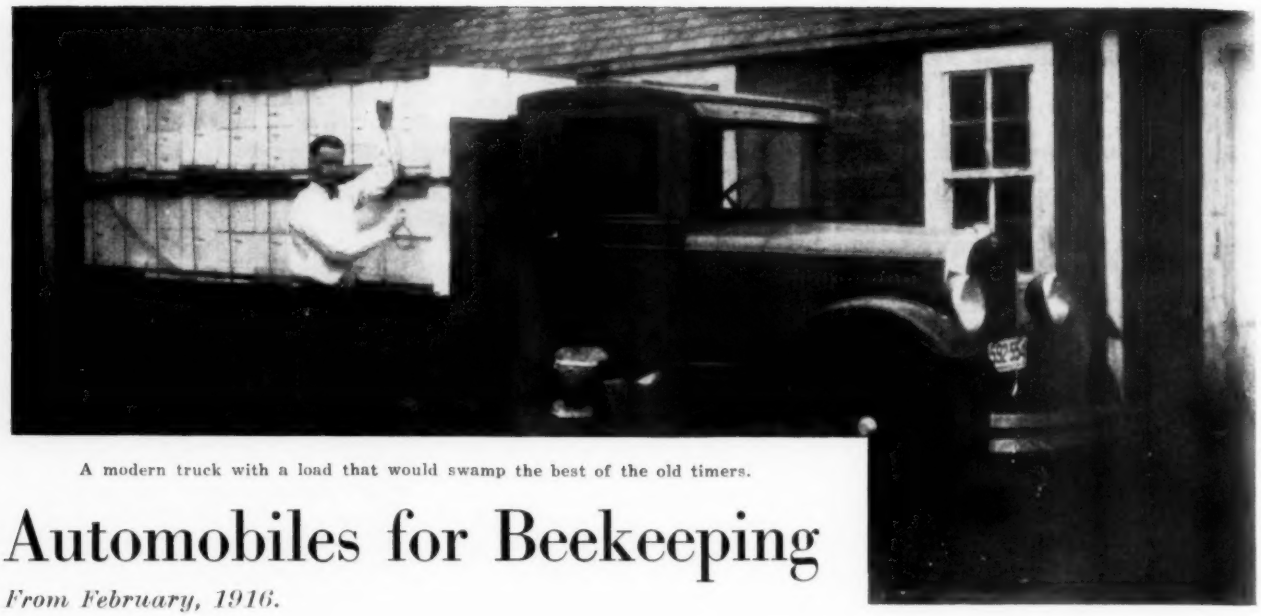
We now went to one of the smallest which had so contracted its cluster during the extreme cold, that they could be said to occupy scarcely more than one space between the combs, for there was not more than 100 bees except in the one space; yet this small cluster was perfectly quiet and gave no sign of bee diarrhea. Upon raising the hive from the bottom board, about 100 dead bees were found which showed that the constant struggle with the cold had caused more bees, in proportion, to die of old age, out of this little cluster than had died from the others; still the greater part of them being alive was sufficient to prove to my friend that bees would never freeze in this latitude while the cluster was in a normal condition.

Our wintering trouble is not caused by bees freezing, but it is caused by the bees getting in an abnormal condition from many of the various causes brought about by long continued cool or cold weather. Let me describe (or re-write what I find in an old diary of mine) my observation of bees during a year when all wintered successfully: "As fall approaches, if we examine a colony of bees we will find that the activity manifested during the spring and summer in the interior of the hive, becomes less and less, so that by the middle of October, in this latitude, all brood rearing has ceased and the bees have become partially dormant; still, so far, they have not packed themselves away in a snug cluster, or compact shape for winter. Every opportunity given by a warm day is improved to void the faeces, so the bees may be prepared for a long, cold spell when such a one occurs. As the weather grows colder, the bees

(Please turn to page 29)



From the figures worked out by Corkins. The two big circles are cluster positions; the larger at 39 above zero; the smaller at 28 below. The food consumption and heat loss was the same for both. As Doolittle says, bees won't freeze as long as they can move to reach stores. If they can't move they will starve to death.



A modern truck with a load that would swamp the best of the old timers.

Automobiles for Beekeeping

From February, 1916.

By J. L. Byer

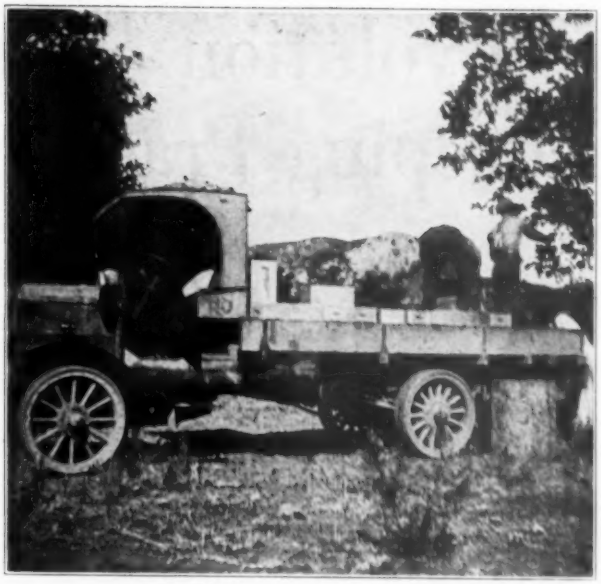
AUTOMOBILES have come to stay. That is the almost universal verdict even on the part of many who have no love (so they say) for the gas wagons. Possibly no body of men in proportion to the number engaged in the business are more fully represented as drivers of autos than are the beekeepers. As I pause in my writing for an instant, I can call to mind about 20 Ontario beekeepers who own machines, and no doubt there are at least as many more unknown to me. It can hardly be said that beekeepers are a more prosperous bunch of fellows than their neighbors engaged in other callings, so there must be other reasons. One of these is that their calling requires much travel, especially if they have outyards, and there are very few who depend upon bees for a living but what have outapiaries.

The question of expense of buying, and more particularly of up-keep of the machines, looms large before the prospective buyer, and those of us who are running machines are often asked, "Does it pay to own an auto for apiary work?" I want to say, in the words of our esteemed friend Dr. Miller, "I don't know," and yet after all it may be of interest for me to give a few figures as to what it has cost us to run a machine for the last three years. Please bear in mind that I consider the question from other angles than simply the dollar and cent view.

In the season of 1913 we bought a Studebaker car—a five passenger 25 H. P. model. This car was run until September of the present year, and then, having a chance for a deal, it was traded for a 7 passenger 1916 model of the same make. The old car was turned in at two-thirds of its original value, and it is on that basis that I figure the cost of the transaction. Repairs were very light. After hearing what some have to put up with, I feel like saying nothing about this item at all. On the basis of my deal, depreciation cost me about $130 a year. As the last season was an average one, I will give figures for that year alone as to oil, gasoline and tire costs. During the season we have run just about 5000 miles—ran the car for the last time this season on Christmas night—snow fell the next day. I have averaged nearly 20 miles to the gallon, imperial measure of course, which is about one-fifth larger capacity than the United States measure, which we call "wine measure."

That figures 250 gallons of gasoline at an average price of about 18 cents—it is much higher now. I used about 15 gallons of cylinder oil at 70 cents a gallon. My tire bill was light, as in the 5000 miles I had only two punctures and one blow out; $40 would cover this item nicely. Will place repair bill at $10, which will cover all items in that line. Recapitulating we have for the year with 5000 miles running: Depreciation, $130; gasoline, $45; oil, $10.50; repairs, $10; tire bill, $40; making a total of $235.50. I have not mentioned the matter of lighting, which must be put down to about $4.00 for two tanks of "Presto-lite." My tire estimate may be a bit low, as we never know how long old tires will last, so to be on the safe side we will raise the bill to $250. The new car is electrically lighted and started so these figures may be too low for next year's expenses, but there is no use borrowing trouble.

A big load with horses in the old days. And what a mess if the bees got loose!



Among the first automobiles was this contraption and we thought it wonderful! (It was.)

For 5000 miles running, then the cost figures out 5 cents a mile. But I made a splendid deal in getting rid of the used car at the price obtained for it—it was in good shape and hardly scratched, but old cars are hard to sell at a fair figure. But the important saving of expense was that I had such good luck in tires. Users of cars, especially of medium weight, will bear me out when I say that the tire bill might be double what mine was for the season just passed, particularly so when we have so much crushed stone on our roads, not limestone, but genuine hard cobble stones run through the crusher.

Now $250 is a big bill for driving during one season, when I can keep a horse for a little over $100. But how many miles would we have driven with the horse if we had had no auto? Much time was made in going back and forth, sometimes three yards were called at on one day. Yet in the end I honestly do not believe that from a dollar and cent standpoint the auto paid us. But when I think of the many pleasant trips the family have had, trips that would never have been possible without the car, I am tempted to say that it paid us very well. From the youngest member of the family to the oldest, who happens to be the writer, we would be very sorry indeed to have to get along without the auto after using one for three years.

Before getting a car I asked friend Sibbald's opinion as to the paying proposition of an auto, and he answered something like this, "Don't ever think of the expense of the car, for it is worth all it costs." Only on that basis can I truthfully say that it pays us to run a car. Some may have a different story to tell and may make the car pay its way and even more. This is my answer to "Does it pay you to run a car in apiary work?"

Do Bees Freeze?

(Continued from page 27)

contract their cluster, many packing themselves away in the cells till the smallest possible space is occcupied by them, and thus the requisite warmth is secured to keep them alive when the mercury sinks below zero.

"In this contraction of the bees (at certain times) many of them are left singly or in little clusters of from five to ten, which do not recede with the main cluster, and thus are chilled where they are, and if the weather becomes cold enough, they may be frozen, thus losing to the cluster that number of bees. The reason for this formerly given was, that owing to the movable frame no cross-sticks were used, as was the case with box-hives, and hence the bees left no holes in the center of the combs as they did around the cross-sticks, thus compelling the bees to pass over and around combs of cold honey to keep pace with the receding cluster, instead of passing through the center of the combs to the next range, which was more nearly filled with bees. In thus passing around, many become stiffened and caught by the cold, which might have been saved if holes were provided in the center of the combs for them to pass through. To this end the Langstroth frame and others were provided with a shaving bent to form a circle an inch in diameter, which was suspended from the top bar by means of a little strip of tin, supposing that this would effectually secure a passage-way for the bee. However, but a short time elapsed before it became apparent that during a good yield of honey this shaving would be filled with comb and honey, and hence the passage-way was cut off. Next, the practice of cutting holes through the combs, each fall, by various means, was resorted to only to be filled up the following summer, when, as winter approached, the process had to be repeated again.

"After trying all these plans, it became apparent to me that the reason assigned as the cause of the death of the bees was not the real trouble, for bees would stay and die within ½ of an inch of these holes, when it would appear they could have passed through these passages just as well as not. I also discovered that when the weather was cool, cloudy and rainy for several weeks before it became severely cold, that this loss was apparently much greater than when a clear, warm day occurred immediately before a severe cold spell. By the numbers of bees that were found on boards and such places, dull and stupid after such a fine day, I concluded that these were the same bees that would have died by not following the cluster, had not a warm day occurred for them to leave the hive to die; hence, I say that the loss was apparently greater when no such day occurred, for many more bees were seen outside of the cluster dead, as they had no chance to get out of the hive to die.

"From several years' experience in this matter, I see no reason for changing the conclusion thus formed. After the bees once get thoroughly clustered, I do not see this loss occurring after a warm spell, as some claim they do, nor but little after a mild fall like the past has been. After being fully settled for winter, and this loss of old bees has passed away, a colony will lose but few bees for six weeks or two months, and will remain quiet. If at this time a warm day occurs so they can fly freely, they again cluster back quietly, and remain so about the same length of time, when they again desire to fly, and if such a chance occurs, all will go well, and the bees winter well. Thus we have a colony in a normal condition, and all the cold ever obtained in any portion of the world where bees can be kept with profit, (occurring during this period between their flights), will not freeze or materially injure them if they have plenty of stores within easy access."

Although several years have passed since the above was written, I have seen nothing to change my mind on this subject, and still believe that if bees can have a good flight once in six weeks, extremely cold freezing weather between these flights cannot harm them; and that belief is strengthened still more by the bees passing safely through the late, extremely cold weather. Bees had a splendid "fly" on Dec. 31, 1884, at which time no trace of bee diarrhea could be seen, as none of the bees spotted the hives or snow.

GEORGE S. DEMUTH

The Evolution of Beekeeping Practice

From May, 1920.

By G. S. Demuth

Demuth has so lately gone (March, 1934) that this reproduction of his fine contribution to beekeeping historical writing is given with some grief. The original was prepared for the Department of Agriculture. It was printed in two parts. The second part will follow in February.

THERE are certain well-defined eras through which beekeeping has passed in its development. The changes in beekeeping practice are reflected in the development of the beehive. In order to understand fully the reason for the present-day construction of the standard hive and its adaptation to modern beekeeping practice, it is necessary to trace the changes that have been made in hive construction and search for the reasons for each of them. It is my purpose in this discussion to point out briefly the different eras in the development of beekeeping in this country, and at the same time trace the more important changes in the development of the beehive.

The Box Hive Era Previous to 1853

Previous to the Langstroth invention was the box-hive era, or the ancient history in beekeeping practice. During this era honey for human use was secured by "taking up" or brimstoning in the fall the heaviest colonies, and during the latter part of the era by using a small box or "cap" placed on top of the hive over an auger hole through which the bees could pass into the box. Beekeeping was quite general, but the number of colonies for each beekeeper was relatively small. The honey produced was largely for home use, though during the latter part of the era considerable quantities of honey began to find its way into the markets.

The most remarkable feature of the box-hive era is the fact that it produced the great leader and teacher, Moses Quinby, whose book, "Mysteries of Beekeeping Explained," is a classic in American beekeeping literature. In the first editon of this book Quinby described in detail the construction of the Quinby box hive and the system of management which he had evolved for its use.

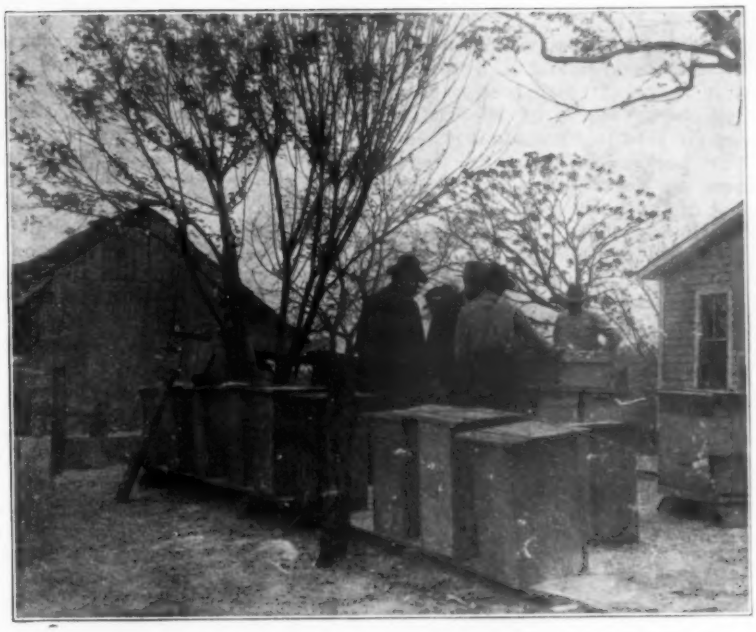
The size of this box-hive had been carefully worked out and it is interesting to note the reasons given by Quinby for a brood-chamber of 2,000 cubic inches, which he used and recommended. In this connection he wrote: "We must remember that the queen needs room for all her eggs, and the bees need space to store their winter provisions; for reasons before given, this should be in one apartment. When this is too small, the consequence will be their winter supply of food is liable to run out. The swarms from such will be smaller and the stock much more liable to accidents which soon finish them off. * * * Suppose you locate a swarm in a hive the size of Dr. Bevans' (1,200 cubic inches), the bees would occupy nearly all of this room with brood-combs, now if you put on boxes and as soon as filled put on empty ones, the amount of surplus honey would be great; very satisfactory for the first summer, but in a year or two your little hive is gone. * * * If too large * * * they last a long time and are but little profit in surplus honey and swarms."—(Moses Quinby, 1853, "Mysteries of Beekeeping Explained," pp. 42-43).

Box hive with shallow cap, the first step in the development of our present system of taking surplus honey.

The Box-Honey Era, 1953-1867

The Langstroth frame and hive was patented under date October 5, 1852. "Langstroth on the Hive and Honeybee" was published early in the summer of 1853, thus appearing simultaneously with Quinby's work, "Mysteries of Beekeeping Explained." Up to this time neither of these great leaders knew of the work done by the other. The invention of the movable frame by Langstroth marked the beginning of modern beekeeping and ushered in the box-honey era. During this period surplus honey was produced in boxes, each holding 5 to 10 pounds of honey, which was built in the boxes by the bees. These boxes were usually made with glass on one or more sides to show the honey advantageously when it was offered for sale in the markets. It was a development from the old cap of earlier days. There is evidence in the early literature indicating that Langstroth, after much careful experimenting, chose the particular depth of his hive because this depth of the brood-chamber caused the bees to enter these empty boxes and fill them with honey more readily than a deeper brood-chamber.

The extra shallowness of the Langstroth brood-chamber in comparison with the familiar tall box-hive or gum, brought a storm of protest from



Apiary of box hives the way all bees were kept in the old days.

beekeepers, many of whom following the lead of Quinby, adopted the Langstroth principle of the movable combs, but used a deeper frame to conform more nearly to the then prevalent idea as to the proper shape for a beehive. Quinby's first modification of the Langstroth hive was 12x12½ x19½ in., inside measure, and contained eight frames, each 18½ in. long and 11¼ in. deep. This gives a cubic capacity within the frames slightly greater than the Quinby box-hive. The American frame was originally 12½ in. wide and 16 in. or more deep, thus making a hive more nearly the shape of the conventional box-hives, but was afterwards changed to 12x12 in. The Gallup frame was 11¼x11¼ in., thus fitting the Quinby hive when the frames are placed crosswise in the brood-chamber. The Adair frame was 13¾x11¼ in., thus using the Quinby depth, the length being such that it would fit a Langstroth hive if placed crosswise in the brood-chamber.

These deeper frames were not well adapted to box-honey production when the Langstroth principle of top storing was used; therefore, some who favored the deep frames arranged their hives for side storing, placing the boxes within the same apartment with the brood-combs and arranged on each side of the brood. This, however, did not prove entirely satisfactory and the Langstroth frame and hive in connection with top storing was championed by many producers of box-honey.

The First Extracted Honey Era, 1867 to 1876

The honey extractor was invented in 1865, but was first heard of in this country in 1867. Many crude home-made machines were built by beekeepers at once, and the use of the honey extractor was taken up with great enthusiasm. In their zeal in the use of this new implement beekeepers extracted at frequent intervals during the honey flow, taking all the honey from the brood-chamber as well as from the combs in an upper story. The difficulty of removing the brood-combs for extracting, when a two-story hive was used, and when the extracting process was repeated every few days, suggested at once the advantage of having all the frames in a single hive-body, thus making all the combs readily accessible when the cover is removed. This gave the advocates of the deeper frame their opportunity, since in extracted honey production it was no longer necessary to use a shallow brood-chamber, as in box-honey production. Even Langstroth seriously considered changing his frame to a deeper one.

On this subject he wrote, in a letter to A. I. Root, on April 4, 1872, as follows: "Dear Friend: I hope you will try the 12x12 in., but I have many years ago tried such frames and do not like them—too much cost to make and handle, etc. I think the hive 14x 14x13 in. deep much better and shall probably adopt that shape, as the honey emptier '(note honey Extractor)' and side boxes make it no longer so desirable to have a shallow hive." The next day, April 5, he wrote: "You will see from my last that I propose to change the dimensions of my frame. Perhaps there will not be much choice between the hive 14x14 x13 in. and 12x12x12 in., but I prefer ten frames to twelve."—Gleanings in Bee Culture, Vol. 2, p. 58).

At this time Adair began strenuously to advocate a hive which he called the New Era Hive, and which later was known as the Long Idea Hive. This hive was arranged for the brood-combs and extracting-combs in the same apartment, and in some cases frames were added until the hive was 4 feet long. Two years later A. I. Root, who previous to this time had been a consistent advocate of the Langstroth frame, proposed a standard hive built on the long idea principle to hold 20 Adair frames. This was known as the Standard. The long controversy on the hive question was now thought to have been finished and the question finally settled for all time. Furthermore, the use of such a hive in connection with frequent and close extracting practically solved the swarming problem. However, the standardization of the beehive and beekeeping practice was not to be accomplished so soon, for another great invention appeared on the beekeeping horizon, ushering in a new era in beekeeping, upsetting the established system of management and changing the destiny of

The Heddon divisional brood chamber hive which nearly swamped beekeeping when enthusiasm for it was at its height.

hive construction. I refer to the invention of comb-foundation and the ushering in of the comb-honey era.

Comb-Honey Era, 1876 to 1906

Impressed sheets of beeswax, making a crude foundation without side walls had been used in Europe since 1857. In this country Samuel Wagner, founder of the American Bee Journal, experimented in making embossed sheets of beeswax and in 1861 secured a patent on such embossed sheets. After some delays incident to the Civil War and the reconstruction period, he entirely abandoned the project. Several attempts were made to build machines to stamp the wax sheets by various persons, and finally, in 1874 and 1875, samples of foundation which proved to be readily acceptable by the bees, were sent out to beekeepers by "John Long."

In 1875 A. I. Root, with characteristic enthusiasm and energy, began his experiments in making foundation. At first he built up plates to emboss the wax sheets, making the plates by assembling "type" which he moulded, each type having the upper face modeled after the base of the cell. These types were soldered together in such a manner that they formed a solid plate, two of which were used to impress the wax sheets. He also, during the same winter, worked on a roll machine, the first of which was finished at Medina, Ohio, on February 26, 1876. During that year 100 pounds of comb-foundation were sent out from Medina to beekeepers throughout the country for experimental purposes.

The enthusiasm with which this new product was received and tried out gave a new impetus to comb-honey production. Instead of several combs in a box, as in the box-honey era, comb honey was at this time produced in single comb boxes and sheets of comb-foundation were used to guide the work of the bees. In regard to the effect of the invention of comb-foundation upon the construction of the beehive, A. I. Root wrote as follows: "Our friend Dean said a few days ago that if he were going to raise comb honey he would unhesitatingly adopt the shallow Langstroth frame, although he has been one of the strongest advocates of the Gallup frame. Just what effect the artificial bleached wax-comb is going to have on the shape of the hives, we are unable to tell, but there can be little doubt that it will turn many others, like friend Dean, toward the Langstroth frame and two-story hive."—(Gleanings in Bee Culture, Vol. 4, p. 26). During the year 1876 neat sections, made of four pieces, but otherwise similar to the comb-honey sections of today, were evolved from their crude prototype, the single comb boxes or frames which had been used by some beekeepers previous to the introduction of comb-foundation.

Comb-honey production now became so attractive that within a few years beekeepers talked and wrote chiefly in terms of comb honey. The exacting requirements of successful comb-honey production made it necessary for beekeepers to study their problems as never before. This is reflected in the beekeeping literature of the time giving it a brilliancy peculiar to the comb-honey era. Such leaders as Doolittle, Hutchinson, Heddon, Taylor, and our own Dr. Miller, together with many others, were the product of the earlier struggles with the multitude of baffling problems connected with comb-honey production In turn they have left an everlasting impress upon the industry through the literature of the time.

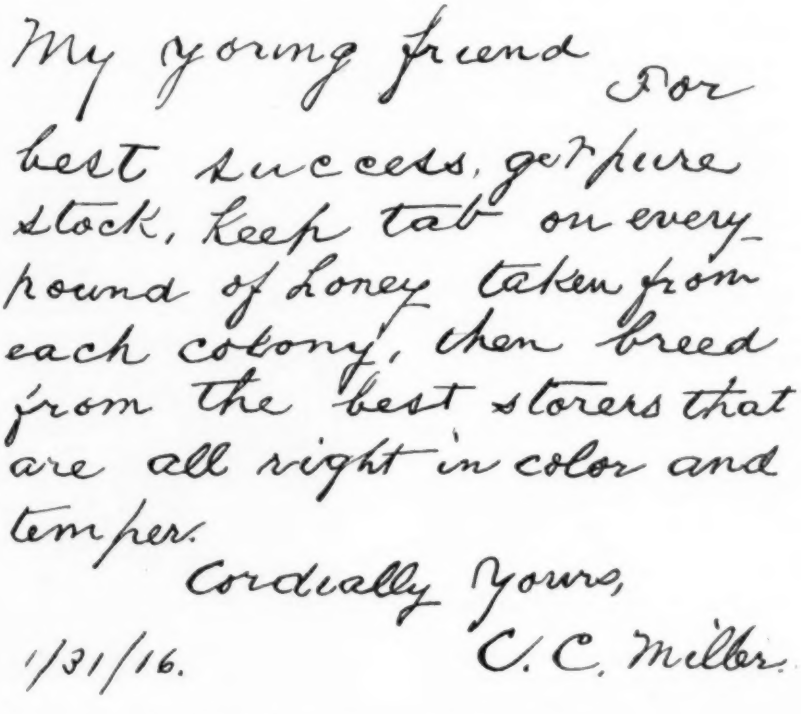
Early in the comb-honey era there was a rapid ascendency of the Langstroth frame and the abandonment of the deeper frames by most comb-honey producers. This was followed by another change in the hive—the reduction in the size of the brood-chamber. Doolittle, one of the few comb-honey producers who retained the deep frame, reduced the standard Gallup hive from twelve frames to nine frames. Heddon and others reduced the Langstroth brood-chamber from ten frames to eight frames. The literature indicates clearly that these peculiar requirements in comb-honey changes were made because of the production, that the brood-chamber be filled with brood at the beginning of the honey flow and a sharp dividing line maintained between the brood and supers during the honey flow.

The change to comb-honey production had brought back the swarming problem, the solution of which had its effect in a further reduction of the brood-nest when hiving swarms. In the clover region swarming usually occurs during the honey-flow, which formerly meant a loss of the crop of honey during ordinary years from all colonies that swarmed. In order to prevent this, beekeepers learned to hive the swarm in a new hive on the old location, leaving the parent colony close beside the swarm until about the seventh day, when it is moved away. This drains the parent colony of its field bees, adding them to the swarm, and at the same time so reduces the colony that after-swarms are prevented. The supers were transferred from the parent colony to the swarm at the time of hiving. In order to compel the bees to put practically all the honey into the supers, the brood-chamber was contracted by means of heavy division boards.

Doolittle described this method of securing large crops from swarming colonies in February, 1885, as follows: "I use six Gallup frames of comb (equal to five Langstroth frames) for the very largest swarms, while others have four or five, according to the size of the swarm to be hived, and in this way I always secure good results."—(Gleanings in Bee Culture, Vol. 13, p. 94).

In July, 1885, Mr. Heddon published an article in the American Bee Journal on "The Contraction Method," in which he advocated that the colonies be maintained on five combs throughout the year, except during the six weeks just preceding

(Please turn to page 49)


My young friend For best success, get pure stock, keep tab on every pound of honey taken from each colony, then breed from the best storers that are all right in color and temper.
Cordially Yours,
1/31/16.
C. C. Miller.

Dr. Miller's advice to his young friend is still good.

Moses Quinby

Sketch of His Life and Labors

From July, 1875.

By J. H. Nellis

Moses Quinby, father of commercial beekeeping.

Moses Quinby was the first of the staunch school of big hive advocates. Charles Dadant followed him. In a time when the use of the small hive and divisional brood chambers threatened to destroy the industry this small group held out the only hope for recovery—a bigger hive.

WITH this issue of the Journal many will become aware of the fact that the noble, kind-hearted, generous, active and reliable M. Quinby, has passed over the Jordan of this life.

He died May 27, 1875, very suddenly, of apoplexy, having previously enjoyed better health than had been usual with him for some time. He leaves a wife and two children, a son and daughter, to mourn his loss.

His father, William Quinby, lived in Westchester County, N. Y., where the subject of this sketch was born, April 16, 1810. He was reared a Quaker, and probably much of the stability of character evinced in after life, is due to the strict training of his childhood.

His educational advantages were limited, but he was from early youth a close observer of everything, — hence, he acquired a practical education superior to that of many who had much better opportunities.

Early in life he showed a love for the study of Nature, and he took especial fancy to bees. When about 20 years old, he purchased his first stock of bees, with the first money he could call his own—earned by working nights in a saw mill. From the very first, the method of increasing bees during summer to be killed in fall, in order to secure their sweets, seemed revolting to his nature, and about this time he became aware that bees would pass through the top of the hive and deposit their nectar in boxes which could be removed as surplus. He immediately adopted the new method, and commenced urging upon his neighbors the advantage of securing the honey in boxes, and as he since remarked, "saving the goose that laid the golden egg, to repeat the operation." In this, as in all subsequent attempts at improvement, he could establish very little except by proving its success.

He now studied the habits of bees closely; he improved the appearance of surplus boxes, substituting for wood, four sides of glass, and after careful experiments, pronounced 2000 cubic inches the right capacity for bee hives in his latitude. If at this time he had kept his knowledge concealed within his own breast, he could have made a fortune, pecuniarily.

He examined carefully such works on the honeybee as came within his reach and becoming convinced that they were not reliable and complete, he resolved to publish his experience, and in 1853 appeared his first edition of "Mysteries of Beekeeping Explained." This met with general favor and wide circulation, and was accepted as a standard.

In 1853 he removed from Greene to Montgomery County, N. Y., where he has since resided, and from that time to his death, he gave his exclusive attention to bee culture, except that he has bestowed considerable care to growing orchards of apples, pears, plums, etc., and cultivated quite extensively grapes and small fruits. For a few years past, he also took especial pride in his trout pond, he having superior advantages for rearing trout. **He now owned or had half interest in from six to twelve hundred colonies of bees, and was instrumental in sending to market from his section, amounts of box honey, ranging from five to thirty thousand pounds, annually.**

Soon after issuing his "Beekeeping Explained," he became acquainted with Mr. Langstroth, and immediately adopted the Movable Frame Hive. A little later, Italian bees were brought to the United States, and Mr. Quinby procured some as soon as possible. He tested the merits of the new variety thoroughly and also modified the Langstroth movable frame, and in 1865, he published a revised edition of "Beekeeping Explained," giving the results of his riper experience.

Having passed the meridian of his life and for want of efficient help, he greatly reduced the number of his stocks about 1862, and subsequently gave much of his attention to rearing Italian queens and colonies for market, and in writing extensively for the agricultural press.

He was prompt to adopt the honey emptying machine and he set forth lucidly its manyfold advantages.

About this time he began to advocate the organization of beekeepers' societies, and as a result, the Northeastern Beekeepers' Association was formed at Albany, N. Y., in March,

1870. Mr. Quinby was chosen President and held the position until at its last meeting, he declined a re-election. His annual essays before this Association were masterly efforts and show to some extent the arduous labor, the severe opposition and the untiring sacrifice of the noble man departed. Truly may it be said of him, "Blessed are the dead which die in the Lord from henceforth: yea saith the spirit, that they may rest from their labors; and their works do follow them."

In 1871, at the permanent organization of the North American Beekeepers at Cleveland, Ohio, Mr. Quinby was unanimously chosen President, a position which he held for one year, but was not re-elected as he did not attend subsequent meetings.

About this time, he became convinced that bee culture would not become universal, until the foolish and widespread fear of stings was removed from the public mind; accordingly he wrote frequently on the best methods of manipulating bees to avoid stings, and as the crowning success of his life, he invented the new smoker, with which to apply smoke, effectually to the subduing of bees.

The disasters experienced in wintering bees, the past few years, has been to him a subject of constant thought, and probably no theory extant today is as good as his conclusions on this subject, as proved by his success the last two winters in escaping loss.

But time and space will not permit us to go into minute details. Of an active, progressive, philosophical turn of mind, he was generally in advance of his fellow men.

He was in intimate sympathy with the abolition of slavery and was closely allied with the cause of temperance.

In stature, Mr. Quinby was of medium height, well rounded, and rather heavily built; his was apparently a vital mental temperament.

Long may we remember the unassuming, pleasant, hearty manner of the man whom we respected as a father! Indeed his cheerful service of time, money and hospitality to those who wrote to him or visited him from curiosity or to learn all they could from him, without returning even a word of thanks, was, to others more selfish, a matter of much surprise.

Our feeble words fail to express the deep appreciation which we had of Mr. Quinby. We consider him the most successful founder of modern bee culture in America, and a man of unswerving conscientiousness, truth and purity.

In short, we sum him up as a deep, progressive thinker, a real philosopher and a genuine philanthropist, who should long be held in grateful remembrance by the American people.

Samuel Wagner

From October, 1929.

By Kent L. Pellett

Since Samuel Wagner was the first Editor of the Journal, this discussion of his life by Kent Pellett, son of our Field Editor, is timely. It first appeared as one in the series of "Lives of Famous Beekeepers."

A. I. ROOT published the "beekeepers' medley." This ebullient little man always was afoot with something novel; now he published on a large mounting the faces of beekeepers he considered worthy of note, arranging them according to his own lights, a hundred of the great and near-great, a medley of the faces which had become distinct from the mass of their fellows.

The portraits of the best known of his day were there: Quinby, Newman, Grimm, Langstroth, Hetherington, the Dadants, Cook, Doolittle, and others. One face, however, was missing, one who had stayed in the background, aloof from the pushing throng who were casting American beekeeping, yet vitally a part of them—the face of Samuel Wagner, the first editor of the American Bee Journal.

Aloof he may have been, and reserved, yet the old German's cool pen had guided his brothers clear of rocks the first years of American beekeeping, and his portrait should not have been left out of the medley.

But Root could find nowhere a portrait of him. Friends told him that Wagner had shrunk from the eye of the camera, had never allowed his likeness to be taken. Root turned to Father Langstroth. He and Wagner had been good friends; perhaps he could find a way out of the difficulty.

Langstroth knew of no photograph of Wagner, but he did know of a man who was Wagner's counterpart. Their best friends often had confused the two when Wagner had been living. This man's picture he sent to Root, who included it in the gallery. Thus by proxy Editor Wagner was placed among the lights of beekeeperdom.

Samuel Wagner was born two years before the break of the nineteenth century. His father was pastor of the German Reformed Church at York, Pennsylvania, and Sam was ten years old before he began to learn the English language. But he made good use of the years spent at the parochial school and at the York County Academy, and at twenty-six he was able to buy the York Recorder and begin his career as an editor.

But, in the course of a few years, for reasons which his biographers have failed to tell—chroniclers are forever overlooking the vital points of a man's life story, in their zeal to record the places where he lived and the years he lived there—Wagner forsook journalism and became cashier of a York bank. This position he held until his later sixties, when he became for five years the disbursing officer of the Senate.

His hobby was bees. Believing that there were enough beekeepers in the United States to support an apicultural magazine, in 1861 he began the publication of a plain little sheet which he called "The American Bee Journal." But bee men, scattered and not yet inured to the rigors of book learning, supported very poorly the first American bee magazine. Then came the first claps of the Civil War. They grew louder, and Wagner discontinued the little paper.

But the war, which cut off the supply of southern sugar from the North, caused the price of sweets to rocket, and housewives demanded honey. Bees became a subject of more general interest, and after the war, at the request of his friends, Wagner again opened the columns of the American Bee Journal. This time the venture was a success and he continued to edit the magazine until his death, six years later.

These were the outward milestones in the life of Samuel Wagner: editor of a country newspaper, cashier of a bank, disburser of the Senate, editor of a small bee magazine—prosaic, no doubt; and but a few of his closer friends knew the richness of his inner milestones and the extent and variety of his knowledge, half-hid by a reticent personality.

He was well acquainted with American history, with the history of his church; when he had become interested in bees, he had taken care to learn as much of beekeeping literature and history, and acquired the best library of German beekeeping literature then in America. He subscribed for the Nordlinger Bi-

enenzeitung, the German bee magazine, with the first issue, and kept a complete file of the magazine.

During the late 1840's a fracas was raised in the pages of the Bienenzeitung. Dzierzon had advanced his theory of parthenogenesis and was engaged in controversy with the naturalists and theorists of various sorts whose pet hypotheses he had upset. Wagner followed the stubborn battlings of the German cure with interest, and ordered his book, "The Theory and Practice of Bee Culture." He perused it carefully and was soon convinced that Dzierzon's system of movable comb beekeeping was better than the box-hive beekeeping practiced in America. He decided to translate the book into English, and in this way to spread the advanced Dzierzon methods among the American farmers.

Several months were spent in translation, and when the manuscript was completed he loaned it to Reverend Berg, of Philadelphia, another beekeeping devotee. Berg was impressed and urged Wagner to publish the manuscript at once.

Berg was not acquainted with German beekeeping, but he read desultory contributions by Americans in the farm magazine. He found interesting the writings of a certain Reverend Langstroth, who displayed a knowledge and an understanding of bee behavior beyond the ordinary. Berg decided to visit him in his West Philadelphia home.

Berg found Langstroth in his apiary, and was surprised, for he was using a bar hive, and seemed acquainted with many of the practices of Dzierzon, although he never had heard of the cure. He had worked out a system of beekeeping more perfect than any Berg had believed to exist in America. Berg told Langstroth of Wagner and the Dzierzon book which he had translated, which he sent to Langstroth upon reaching home.

Langstroth was soon writing to Samuel Wagner and telling him of his amazement that another had preceded him in discoveries he had thought his own. Yet, he believed his hive had points of superiority. He invited Wagner to come and see him. Wagner found the Philadelphia clergyman a charming correspondent and decided to accept his invitation.

Langstroth was not at home when Wagner arrived; but in his absence Wagner explored the apiary thoroughly, opening and examining the clergyman's peculiar hives. Now it was Wagner who was amazed. Here were put in practice principles of the book he had taken months to translate. Here were the movable combs that Dzierzon advocated. But the details of operation were different and the hives of the two masters did not at all resemble each other in appearance. Wagner admitted to himself as he glanced through the hives and handled the combs that here was a perfection and simplicity that Dzierzon himself had not attained.

As he went home he looked into the future of American beekeeping. He had dreamed of becoming the benefactor of American bee men, of helping them to better their practice by publishing the book of Dzierzon, but now he happily put that dream aside. Langstroth with his movable frames had gone beyond the German cure—he should be the prophet of the new beekeeping.

He urged Langstroth to write a text on beekeeping and publish his discovery to the world. It was what Langstroth had in mind, and within a few months he was in a fever of work preparing his manuscript. It was published, and Langstroth's system slowly captured America. Wagner tucked his manuscript away in a drawer, where it remained; and later, when the first translation of Dzierzon's "Theory and Practice of Bee Culture" was given to the American beekeepers, it was done by a hand other than that of Samuel Wagner.

Wagner and Langstroth became the best of friends, and together undertook several ventures. Wagner, becoming interested in the success of the Germans with the Italian bees, in 1856 had ordered some of the yellow bees shipped to him; but the mate on the boat had proved a hungry fellow and had stolen all the honey, leaving the bees to starve before they reached New York. Three years later Wagner and Langstroth, with a man named Colvin, made another attempt to import the Italians. But by that time others had seen their possibilities. Parsons was importing some stocks for the United States Government, and P. J. Mahan also was making the attempt. The three cargoes of bees all were on the same ship. There was haste as the ship docked. Who would have the honor of landing the first Italian bees on American soil? A hive belonging to Parsons was smashed as it was thrown to the dock. The captain of the boat walked ashore with one of the hives of Wagner, Langstroth, and Colvin, and proclaimed the bees the first Italians to reach America. The honor remained a mooted one. All parties claimed it.

Langstroth often wrote for the American Bee Journal. Where could have been found a better team for the establishment of the first American bee magazine than the inventor of movable frames and the scholarly old German, who, versed in the pages of the past, yet followed closely the developments that were treading on each other's heels in that turbulent day? The American Bee Journal, in those first years when Wagner's calm and restrained hand guided it, was a model of apicultural scholarship, of careful editing. Wagner barred from its columns the contentions and disputes that were for years to fill the pages of the later magazines.

His chief fault, perhaps, for representing the times, was that he was too much the scholar, restrained in a period when everybody was excited and when rural people had little time for the niceties of book learning, but loved nothing so much as a battle of wits or of words. Wagner held himself aloof. Other editors contended for special systems and punched the editorial noses of their rivals.

The old American Bee Journal may have been quiet and dignified in tone, but in its pages were chronicled the happenings of the most significant years of American beekeeping. There appeared the evidence for the Dzierzon theory of parthenogenesis, the first record of the sight of a mating of a queen and drone, and the story of the invention of the honey extractor, with a picture showing its construction. In its columns were printed the minutes of the first convention of American beekeepers, the record of the successful propagation of the Italian bees in the United States, the story of the growing popularity of the Langstroth system.

In Wagner's last days, however, one severe controversy racked the Journal. When, after H. A. King had for years openly sold hives infringing on his patent, Langstroth brought suit against King, Wagner considered the case of so much importance that he opened his columns to all the evidence that might be offered by both parties. King went to Europe searching for proof that Langstroth was not the true inventor of the movable-frame hives, and came back with statements of leading Europeans which seemed to prove their priority as inventors.

Wagner printed King's evidence, with refuting statements by Langstroth. He also printed a letter from Charles Dadant. Dadant had worked with the movable-frame hives invented by the Europeans prior to the Langstroth hive, and he wrote that they were impractical compared to the Langstroth hive. Wagner sent the letter to be printed in the Journal, with a few words of his own appended. "King may begin to suspect," he wrote, "that his efforts at deception have not been quite as successful, in this instance, as he hoped they would."

He laid aside his pen. These words, the first harsh words he had written for the Journal, were also the last which ever appeared in print over his name, as a few mornings later he died suddenly.

It was a fortnight before King felt, through the American Bee Journal, the rebuke of Samuel Wagner.

They stack the supers high in sweet clover country. This is in South Dakota.

What Do You Think of Western White Sweet Clover?

From September, 1929.

By R. B. Willson

The period covered by the American Bee Journal has seen the rise of white Dutch clover to first rank as an American honey plant; it saw its decline and the rise of sweet clover to the coveted position. What will be next?

IF five years ago I had expressed my opinion of sweet clover honey it would not have sounded very well to the western beekeeper. In my ignorance and in my pride for our New York clover honey I had permitted to develop in my mind a strong prejudice against the white sweet clover honey of the West. The prejudice was built up partly on fear that this honey, being produced on a large scale with a large per colony yield, would furnish our home product terrific competition, an opinion doubtless shared by others in the East. I am glad to say I have lived to learn that instead of harming the eastern beekeeper, western white sweet clover has proved a source of real income to him. How this has come about I shall show later.

I entered the field of business three years ago with this prejudice well set. Very soon I began to see and taste many samples of this western white sweet clover honey. My prejudice began to weaken from then on, until now it is completely gone. And it was eastern beekeepers who confirmed my newly formed opinion of this variety of honey. It came about in this way:

I was invited a year ago last summer to address the Western New York Honey Producers' Association on the general subject of marketing. I preached an old sermon, but with new material. I know the western New York producers hoped they would be told that there was going to be a good market for their bulk honey in New York City at good prices. To convince them that in order to get good prices for their honey it was necessary to sell it at home to the consumer in retail packages, I had a half dozen or so of their most prominent members taste certain honeys in unlabeled jars and classify them as to flavor alone as excellent, good, fair, or poor. The consensus of opinion was that western white sweet clover honey was excellent, and for this honey we were at the time paying 7½ cents a pound, delivered to New York. Reason enough for selling honey at home.

Later I tried the same experiment on the Connecticut Beekeepers' Association, with the same results. In neither instance did the beekeepers know in advance that this honey they classified as excellent was sweet clover honey. And so here is a product which improves immensely on actual acquaintance.

Honey crops in the East are uncertain as to quality and quantity. Frequently our crop is produced under humid conditions and our honey is thin. Much of what was formerly considered among our best white clover producing sections is now badly overrun with weeds whose nectar depreciates the quality of the honey produced therein. Sumac of eastern New York and New England is an uncertain yielder and by itself the fall honey of southern New York and New Jersey is dark and quite strong in flavor.

Let us see how western white sweet clover honey fits into these deficiencies.

1. As to flavor, it must be accepted good, and it is mild.
2. It is produced in very large and dependable volume.
3. It is among the whitest of honeys and can thus be used to lighten darker honeys.
4. It is generally of heavy body and can be used to give density to thin honeys which by themselves might ferment.
5. Its quality is uniform.

By elaborating a bit on point 5 above, I can now explain why I said this western white sweet clover honey has become a source of income to some of our eastern beekeepers. With this honey they can make dark honey light, strong honey mild, and thin honey can be given a heavy body; or combinations of these three things, which often need to be done, can be accomplished by blending. And just as important,

the use of this honey in blending with our eastern own crop does not rob it of its characteristic flavor, for the sweet clover honey from the West is very mild. One ton of eastern honey can be easily stretched into two tons of the same honey with it, and it is advisable sometimes to stretch it even to three. This past year, to my personal knowledge four New York honey producers bought western white sweet clover honey in car lots to blend with their own crop. Many other producers are buying it in ton lots, and all of them are not only adding materially to their income by so doing, but are strengthening their business by improving the quality of their honey. The energetic bee man in most communities in the past will find that there is a consumer demand for honey to exceed his supply. His cue is western white sweet clover honey.

Has it a fault? Someone may wish to rise and say that it is quick to granulate. It is, but its granulation or candying properties should be listed with its virtues, for it crystallizes smooth, hard, and pasty.

The beautiful crystalline mass into which this honey usually forms lends itself better than any other to the making of the product which is variously known as honey butter, honey cream, cream of honey, and Hunny Whip (the registered brand name of the John G. Paton Company). These are truly delicious products, but difficult and costly to manufacture on a commercial scale. The patented whipping process breaks down the crystals to minute size, thus giving the honey more chance for immediate expression when it is placed on the tongue than the ordinary candied honey, and, more important, it renders it soft and easy to spread.

We want to avoid giving the impression that **all** sweet clover honey is excellent, for it is not. To guess, I'd say that half of the crop could be graded as such, the other half being from good down to poor. But whole states produce honey from sweet clover that is unquestionably excellent in quality. Wyoming and Montana lead in this respect, and much of the honey from Idaho, Utah, Nevada and Colorado is also excellent. That which is being produced in the Red River Valley in North Dakota is also excellent—of delightful flavor and water white in color. No wonder the number of colonies has increased tenfold in a few years in this great beekeeping region.

And the world thinks well of this honey known to commerce as western white clover. Bear in mind that on world markets American honey has to compete with honey from the ends of the earth: Chile, Siberia, New Zealand, Hawaii, etc., etc. In England, where true worth in honey is appreciated, our western white clover honey is highly prized and purchased by hundreds of tons annually for packing in its natural candied condition in glass jars. This, too, is in the face of keen competition from some of the finest quality real white clover honey produced in the world, from Ontario, Canada.

In Germany, where merchants insist they are too poor yet to pay high prices, they are still purchasing our western white clover honey in tremendous quantities, although our prices last fall and again this spring underwent a substantial revision upward.

In Italy, where usually enough honey is produced to take care of their requirements, last year they suffered a honey crop failure. We submitted samples of American honeys for the organized producers there to use in substitution of their own honey, and western white clover was selected as being best suited for the Italian palate, so well trained away from food without character.

Here in the United States, western white clover honey, in spite of its granulating properties, now makes up fully 50 per cent of the honey packed in glass and small tins. Properly heated and blended with sage or tupelo honey, it will remain liquid long enough for commercial purposes.

Sweet Clover is the most important honey plant in the United States. Probably it is as important in pounds of honey as all other honey plants combined. Certainly without it we would have no semblance of a honey industry in our country today.

A typical sweet clover field in the North.

Proposed Telegraphic News Service on Honey By Dept. of Agriculture

From July, 1917.

When this service was first heralded few realized how soon it would be the greatest market reference service that the industry has ever had. We now know that we can't get along without Clay's neverfailing market reports.

IN response to urgent requests, the Office of Markets and Rural Organization of the United States Department of Agriculture is planning to extend its telegraphic market news service to include reports on honey. Practically all growers in the important commercial sections shipping fruits and vegetables are familiar with the market bulletins which have been distributed by the Office of Markets during the past two seasons. These daily bulletins, which are free by mail to any who request them, cover nine of the more important perishable commodities and show daily the number of cars of each commodity which have been shipped from each state during the past twenty-four hours, as well as the following information for each of the eighteen markets reported by representatives of the department. The number of cars which have been received on the market during the past twenty-four hours segregated by originating districts the general quality and condition of the produce from each section; the weather conditions; and finally the prevailing wholesale (jobbing) prices at 8:00 a. m. These reports are telegraphed to Washington, summarized and edited, and rewired to the various markets where representatives are stationed, with the result that printed bulletins are issued and distributed simultaneously about 1:00 p. m. of the same day from all of these offices. Some idea of the size of the service may be secured when it is understood that over 3,000,000 bulletins were distributed last season to over 50,000 persons located in more than thirty states.

(Please turn to page 40)

GENERAL QUESTIONS

From February, 1894.

Answered by Dr. C. C. Miller

Dr. Miller's answers to questions were a leading feature of the Journal for many years. His answers set right a multitude of problems for beekeepers of all ages. Here are the first answers and the Editor's comments.

In this department will be answered those questions needing **immediate** attention, and such as are not of sufficient special interest to require replies from the 20 or more apiarists who help to make "Queries and Replies" so interesting on another page. In the main, it will contain questions and answers upon matters that particularly interest beginners.—Ed.

REARING QUEENS FOR HOME USE

Can you give an easy method of queen-rearing on a small scale, for 20 to 40 queens in a season? I wish to rear about 30 queens to Italianize my apiary, and would like to do it before the honeyflow in the spring, if possible; but I don't know how to do it, or if it can be done. G. D. L.,
Tacoma, Wash.

Answer.—If you want to supply all your queens before the honeyflow in the spring, perhaps the easiest and surest way will be to send south and buy queens. For good queens depend much upon season and weather, and you need not expect to succeed in rearing them in advance of the honeyflow. If it were otherwise, you would not find the most expert queen breeders complaining that they could not fill orders in time because the season was against them. Study up thoroughly in the books, or in some one good book, the general principles of queen-rearing, and then you will still find you have something to think over to know just how to make them apply to your particular needs.

CANDY FOR WINTER FEEDING

I have several colonies in the cellar—some rather light in stores. I wish to place candy on top of the frames under the quilts. 1. How can I make the candy for cellar feeding? I have Phenix R sugar—will that do? 2. Would it be better to use part honey in making candy? If so, what proportion?

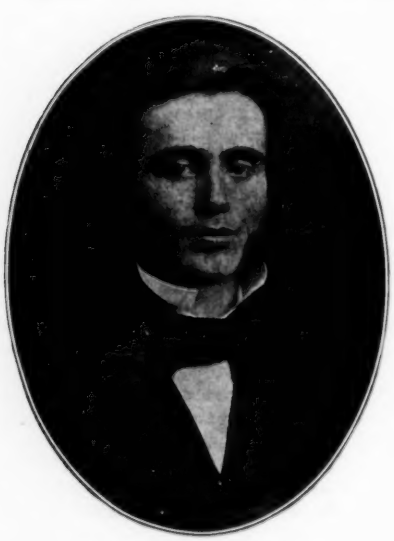
I have just been looking over the last two volumes of the Bee Journal, but I do not find what I wish. But believing this an age of improvement, I would rather hear the advice of the present time. C. B. H.,
Wellsville, N. Y.

Answers.—1. Any brand of pure granulated sugar is good, and, on the whole, probably nothing is cheaper. That's for making hard candy which needs no honey, and is made by boiling, like any candy.

2. Of late, what is called Scholz or Good candy, is much used. I quote from Root's A B C instructions for making, as follows:

"Take good, thick honey and heat (not boil) it until it becomes very thin, and then stir in pulverized sugar. After stirring in all the sugar the honey will absorb, take it out of the utensil in which it is mixed, and thoroughly knead it with the hands. The kneading makes it more pliable and soft, so it will absorb, or, rather, take up, more sugar."

Lots of kneading seems to be very important, and when it is done you will have a stiff dough. After standing, however, it doesn't always stay just the same, and it wouldn't be a bad plan before giving it to the bees for you to let it stand a day or two in the same atmosphere the bees are in. If it remains without change, all right; but if it gets thin, you can knead in more sugar.



Dr. Miller as a young man.

SEVERAL HIVES IN ONE BOX

I have my bees in long boxes, each holding 10 colonies, and room for chaff over and around them. I placed them in these boxes early last fall, and ever since I have noticed an undue amount of dead bees at the entrance. We have had a very light winter so far, bees have flown almost every day, and should have wintered well, as they have plenty of sealed stores.

1. Do bees, when placed as above, all using one general entrance, get in the wrong hive and get stung? If so, could I remedy this by making a long box wide enough to take the frames, this box to be placed in the larger box, and box to be placed in it and separated only by queen-excluding division-boards?

2. Would the bees, on being suddenly turned together, fight and kill each others' queens? If so, could I prevent this by using wire-cloth division-boards until they became of one scent? If not by this means, by what other means could it be done?

I wish to leave them in this box all summer. I will remove the sides and ends and the roof will act as a shade. Later, when Spanish needle blooms, and the nights become cool I will replace the sides and chaff, so that comb building will not be retarded for want of heat during the night.
A. M. T.

Bronaugh, Mo., Jan. 24, 1894.

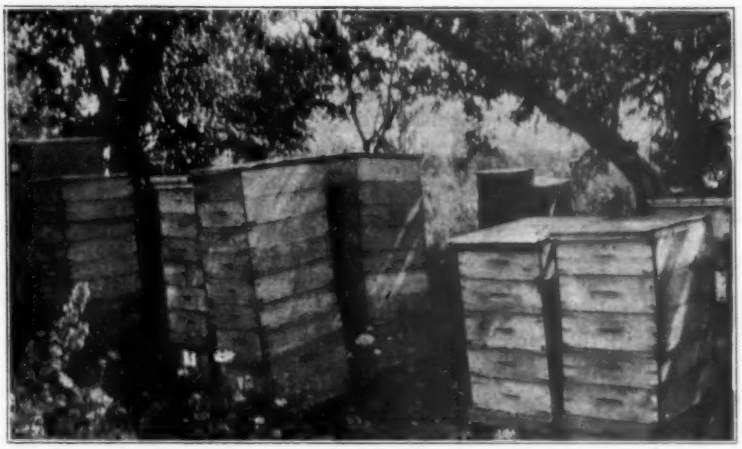
Dr. Miller at his wisest age.

Answers.—I think I can answer your questions more satisfactorily to answer them all in a lump. If I understand you correctly, you have one general entrance for all the colonies. That will hardly do. When the bees are busy at work in the fields they may stand mixing up in all sorts of ways, but at other times it isn't so safe. Neither do I believe it best for you to have them so the bees of any two colonies can mix, outside of the working season. I know that a good deal is being said just now, especially across the water, about having two colonies together, and it may do to try it carefully on a small scale, but I wouldn't run the risk of mixing several colonies and queens.

I think your idea is to have the advantage of the heat of several colonies together, and it looks reasonable that much should be gained by it. But you never know till you try, what the bees themselves will think about it.

I would advise you to have your colonies entirely separated, perhaps by board partitions, and these may be only a quarter of an inch thick, then let one have an entirely separate entrance, by some kind of a tube as a passage from the colony to the outer air. Posts or boards, or trees, anything to make the entrances unlike, will be a help.

Be sure to let us know how your experiment turns out.



Dr. Miller's yard with a top-notch crop of comb honey.

A SCHEME FOR SWARMING-TIME

Will you kindly give me your opinion as to the probable success or failure of the following scheme?

We will suppose it is swarming-time, and a swarm issues. I remove the parent colony to a new location. I then hive the swarm on the old stand in a hive containing starters, and one frame of brood with queen-cells from the parent colony. I at the same time secure the queen as the swarm enters the hive, and return her to the parent colony. Now I query:

1. Will the swarm "stay put?"

2. Will the queen stay in her former home, or will she go looking for the swarm?

3. Will it be necessary to remove queen-cells from the parent colony?

4. Suppose the plan, as outlined above, works all right thus far, will there be any advantage in it, aside from the more rapid building up of the parent colony?

J. L. M.

Clark's Corner, Conn.

Answers.—1. Yes.

2. She'll stay where you put her.

3. I think not.

4. I don't believe you'll like it. The swarm will be a week or more without a queen, and during that time will not make rapid work building comb, what they do build being drone-comb principally. (I don't believe I would use starters, anyway, for even with a queen you will get more drone-comb than you want. Use full sheets of foundation.) There is no brood to hatch out except the one comb, and the young queen will not be laying for two or three weeks. All that will interfere materially with your honey crop, and, remember, it is your swarm that you expect to do the storing.

KNOWING WHEN BEES PREPARE TO SWARM

Is there any way of knowing when bees are preparing to swarm, without looking for queen-cells? A. W. S.

Shelton, Neb.

Answer.—I don't know that there's any infallible way of telling in advance that a swarm will issue. Even by looking for queen-cells, you can't always be certain, for bees seem to change their minds sometimes, and give up swarming after starting queen-cells, and again they will swarm—at least some say they will—before they have made the least start toward queen-cells.

In the old box-hive times, the hanging out of a colony in the midst of the honey harvest was counted a sign of intended swarming, and it was pretty reliable. Some allowance must, however, be made for conditions. If the hive be roomy and well ventilated, there may be no hanging out at all before swarming. If, on the other hand, the hive be small, with little chance for the admission of air, the heat and the lack of room may crowd the bees out and make them hang in clusters when they have no notion of swarming. Then, too, the position of the hive makes a difference. Let a hive stand where the least breeze that stirs gives a refreshing coolness, the hive standing in a good shade, and bees will not hang out as they will in a hive that stands directly exposed to the sun's rays, but walled around to prevent the constant admission of fresh air. Possibly you may be able with experience to distinguish between the hanging out of a colony from other causes, and the sulky demeanor of a lot of bees that have made up their minds they must have a new home or "strike."

DRONES—FINDING BLACK QUEENS

1. In using Alley's queen and drone-trap, how many drones would you leave alive—that is, return to the hive? (All the drones but about a dozen I usually kill.)

2. How can you tell best and quickest, without looking over the combs very long, if possible, if a colony is queenless in winter or spring, whenever warm days allow the examination of the hive?

3. As it is hard to find a black queen preparatory to introducing an Italian queen, can you give me any ways and means to find her best and quickest? Subscriber.

Answers.—1. That depends altogether upon circumstances. If your drones are no better than those of your neighbors within half a mile, you needn't be to the expense of saving any of them. In general, I should say kill off all drones, or prevent their being reared, in all colonies except one or two of your best, preferring to rear queens and drones from different mothers, so as to have them not nearly related.

2. Brood-rearing begins very early, and if you will pull a comb out of the middle of the brood-nest any time after February, it will take you a very short time to see whether there is any brood present. Even if the queen has not yet commenced laying, a strong force of bees with no appearance of anything wrong may leave you hopeful that all is right. But why bother about anything of this kind until late enough for the queen to be laying for certain? If they are all right, you will not do any good to stir them up, and if they are all wrong, you can hardly help them any till "flying weather" comes.

3. Strain the bees through a queen-excluder. It may take a longer time than looking over the combs, and it may take a good deal shorter time, for in looking over the combs you may find her first thing, and you may not find her at all; but the straining process makes a sure thing of it.

A QUESTION ON MANAGEMENT

I am engaged somewhat in beekeeping, in partnership with my son, and would like to have a little information on some points.

We have 55 colonies on the summer stands, mostly in good condition. Heretofore we let them swarm mostly at will, except that we restrained after-swarming as much as possible; but now we don't care so much for increase, but want to work more for honey, yet we do not want to prevent swarming altogether. We have a few Italian and a lot of hybrid and black colonies; in some, the queens are several years old. We want to rear some queens during the coming season, and requeen all hybrid and black colonies. I want to clip all queens' wings in the spring.

Now what I want to know is this: If I let those old queens alone until swarming time, and then take them away and thus keep them from swarming, or let them come out with a swarm and then destroy them, and let the swarm go back, then at the proper time give them an Italian queen-cell, or a virgin queen (or a fertilized one, if I have it), will the colony work as well and store as much or more honey than the swarm and old colony would have done had I let them swarm in the regular way and prevented after-swarming?

Which would be the better plan—to take the queen away before they swarm, or let her come off with a swarm and then kill her? and how soon, and in what way, would you introduce a cell, or queen, if either kind? In any way, I suppose all queen-cells would have to be destroyed. A. H. S.

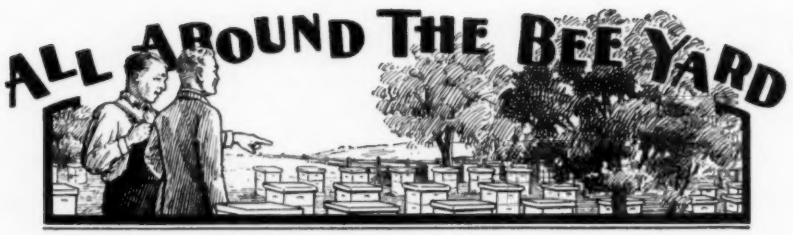
Huntington, Ind.

Answer.—It isn't very easy to answer your question as to whether you can get as much honey from an old colony and its swarm as from the old colony alone if it does not swarm. Some will answer you one way, and some the other. It depends a good deal upon circumstances. In places where there is a big yield of honey late in the season, there may be a decided gain to have the swarm. Throughout the North, however, most beekeepers look upon swarming as a damage to the honey crop. It must not be forgotten, however, that a colony that refrains from swarming, of its own will, is one thing, and a colony that is prevented from swarming by some bungling intermeddling is quite another thing.

I don't see anything you would gain by letting the old queen come out with a swarm to be killed, letting the swarm return. It will be full as easy to find her and kill her before swarming, providing the bees don't get the start of you.

In your case, I'm not sure but the following plan might suit you:

Suppose A has an Italian queen and B, C, and D have queens that you want to kill. Encourage A to swarm first, by giving it brood or by early stimulative feeding, although the brood may be the best, and it doesn't matter if the brood is black. When A swarms, hive the swarm on the old stand and put A in place of B, setting B on a new stand. The flying force of B will all join A, making it again strong, and in a week or so from the time the first swarm issued it will send out a strong second swarm; hive this on the stand from which it issued, and set A on C's stand, setting C in a new place. In a day or two another swarm will issue, when the process will be repeated, and A set on D's stand, and this may continue as long as swarms issue. Thus all swarms have queens from A.



By G. H. Cale

WHAT a number! What a number! We have lived seventy-five years of beekeeping the last three weeks here at the office. What will the next seventy-five years bring? Will the changes be as significant as those that have taken place in the past?

— o —

If the improvements suggested by Maurice Dadant in the crop and market page come about, I know a large number of us will be quite pleased. With instrumental mating now a usable method, it should not be difficult to make considerable improvement in bees both in honey gathering and in disease resistance. If the work of American Honey Institute continues as it has the past few years, it is not hard to see a time when marketing will be as orderly and well regulated as the marketing of butter or milk is today.

— o —

I am particularly impressed with the article on automobiles. In looking up material for illustrating it from the past files, one thing impressed me very much: that is the greatest improvements **in trucks** have come in the past two years. About six years ago, the automobile truck did not look very much different from those of 1920; some improvement, of course, but in the past few years, there have been a vast number of improvements. The modern two-wheel capacity car is with us and it makes a world of difference in beekeeping.

— o —

It is amusing to read Doolittle's comments on prices. Maurice Dadant goes into prices in his crop and market page. After the invention of the extractor, prices leveled out, not varying much from year to year from the average of the whole period covered by the report, 56 years with an average of 7.45 cents per pound. When the War came, prices skyrocketed. Immediately following these all-time high prices, honey fell to an all-time low price of 3 cents. In some places it sold for less than 3 cents per pound in carload lots.

We don't want these extremes. It is better to hit the middle of the road. It will be decidedly better for markets to remain at an average price on which buyers in other industries can depend. When the variation is great enough, much of our market is lost to us.

Of course, I belong to the big hive users now. Years ago, with Merwin in the Catskill Mountains, I kept bees in 10-frame hives; also in Maryland in 10-frame hive; in Massachusetts in 10-frames.

Then I came out to Dadants. My notion was that they should have some 10-frame hives. I didn't really believe they had made a good comparison but I lived to change my hives too. All my bees are in big hives now.

How it will do for comb honey, I have never been able to find out as we produce extracted. I have always had a feeling under my skin that with proper management, the Modified Dadant hive would be an excellent comb honey hive but no comb honey man will agree with me.

— o —

How many eggs will a queen lay? Doolittle has it pretty high, doesn't he? At one time it was my good fortune to assist in the counting of the brood in a number of colonies in the government apiary in Washington. In our counts, several times we reached a number of 14 full combs Langstroth size with brood in all stages. If this is multiplied by 5000 cells to the comb, it gives 70,000 for the period of 21 days or over 3000 eggs per day.

So I am inclined to agree with Doolittle. Of course, not all our queens will do that well. The problem is to get them so they will. Possibly instrumental mating will help us there too.

— o —

Doolittle saw everything that went on before his eyes. He also decided that bees will not freeze in winter but they may starve to death. Corkins told us that from scientific experiments in 1932. The surprising thing in these experiments was that altho the bees either increased the size of the cluster or diminished it in response to temperature, the food consumption remained the same and the temperature about the same. Just as long as they were able to move to new stores gradually, no amount of cold could hurt them.

— o —

Just now with the temperature hovering around zero, we wonder just how long the bees are going to be able to stand it. Here in this country, we do not pack, we shelter. The lids are filled with straw or with paper. In the case of the Modified Dadant hive, the entrance is reduced to about an inch. A few of the exposed yards have tar paper wrapped around the hives also to help absorb heat and to cut off some draft.

Will we ever be driven to heavier protection? It does not take a distance of over a hundred miles north to demand packing of some kind. The surprising thing in the past few years is the way outdoor packing has spread among beekeepers, even in the North where the temperature has dropped way below zero and stays there for a long period. Geo. Seastream of Moorhead, Minnesota, visited us the other day. His bees are all packed with top entrances in straw, with tar paper to protect the straw. He reports successful wintering during winters with the thermometer as low as 47 below zero.

Proposed Telegraphic News Service

(Continued from page 37)

Although it is estimated that only 10 per cent of the honey crop is distributed in car-lot quantities, it is claimed that prices for the local movement depend to a large extent upon the commercial price. An accurate and unbiased report of prevailing prices in the larger markets should do much to prevent speculation, steady the market and tend to eliminate the unfortunate practice of throwing the entire output upon the market at the opening of the season, with the resultant drop in prices and serious scarcity later in the season.

It is impossible at this time to state definitely the exact form in which the proposed honey reports will be issued, as representatives of the department are now visiting the larger markets and interviewing members of the trade, representative producers, and editors of beekeeping journals to ascertain the exact information which is needed, the frequency with which the reports should be issued and other essential details. It appears probable, however, that the reports will be issued semi-weekly, weekly, or even bi-weekly, as daily reports are not essential as in the case of perishable fruits and vegetables. In contents they will follow closely the bulletins now being issued which have just been described. The service will be started about July 1 and the information will be made public through the newspapers and beekeepers' journals as well as by separate bulletins by mail to all interested persons who request the information. Inquiries should be addressed to Charles J. Brand, Chief, Office of Markets and Rural Organization, U. S. Department of Agriculture, Washington, D. C.

Flashes from Valdosta

Well here we are in the deep South. And what a Conference it is. The newspapers call it an International Congress. It is. There are fifteen from Canada—one from Manitoba and the balance from Ontario. How the Ontario fellows did surprise us. With Dr. Dyce in the lead, they marched into the convention hall in a body. Then came Gooderham, Dominion Apiarist.

The representation is the best that American beekeepers have ever given to any meeting in the entire history of beekeeping in this country. Texas, Alabama, Georgia and Florida perhaps bulk the largest; but California, Louisiana, Wyoming, New York, Pennsylvania, Connecticut, Michigan, Indiana, Illinois, North Dakota, South Carolina, North Carolina, and Maryland—we'd better stop there because there are forty-eight states and I'm sure there are many others with representatives here.

Many beekeepers stopped to play around a bit too in this southland where we sit in the sun and soak up the warmth and read of temperatures at home down in the shivering brackets. There is a bewildering green from evergreens all new to our eyes —camphor trees, hollies, magnolias, pines, live oaks — which line the streets and abound close to both the modern and the old pillared and porticoed southern homes. And the people go with the picture, hospitable and friendly. No wonder most of the folks want to stop and play and eat oranges for health. A penny a piece down here.

A heavy program started with a bang. Of course discussion of package prices was a great drawing card to get the boys out before the breeding season starts. On another page you will find the latest report on prices for 1935.

There are better than sixty speakers. And why not? Most of the industry's leaders are here and they must be given a workout. Later we'll have a full report and give you the high lights of all that takes place. This is only the second day.

The first National Honey Cookery Contest is a great success. There are over 300 entries for cakes and cookies from thirty-two states. Winners are not known at this writing but will be announced next month. There is a great scramble among the men for a place on the judging committee (just to get a taste of the entries).

There will be no lack of entertainment before closing hours. It will be an effort to turn back into winter cold again. It would be no surprise if some of the first-timers repeat the visit next year and hunt a cottage in the sun.

About 400 registered. The newspapers hope for a thousand but it won't reach that. Let's guess 450—and that will be the largest convention of late years. G. H. Cale.

Kentucky Beekeepers Will Meet January 22

The Kentucky Beekeepers' Association will meet at Lexington on January 22 for a one day program. Lectures and demonstrations will be given on subjects of immediate importance to bee men.

W. A. Price.

Indiana Beekeepers' Conference January 15, 16 and 17

The Indiana Beekeepers' Conference will be held during Agricultural Conference Week at Purdue University, Lafayette, Indiana, January 15, 16 and 17. Anyone interested in the program can receive a copy of it by writing to the Department of Entomology. Speakers on the program will include W. E. Dunham of Ohio State University; J. E. Starkey, State Bee Inspector; B. E. Montgomery of Purdue; Ross B. Scott of Lagrange, Indiana and Aneta Beadle of Purdue.

New Jersey Beekeepers Meet January 24

The annual convention of the New Jersey Beekeepers' Association will be held January 24th at Trenton. The program follows:

C. L. Howk, of East Orange, President, presiding.

Morning Session

9:30 A. M.—President's Address.

10:00 A. M.—Report of Secretary - Treasurer, Elmer G. Carr, Pennington.

Reports of Standing Committees:
Research, Richard D. Barclay, Riverton, Chairman.
Public Relations, Geo. S. Oettle, Chatham, Chairman.
Membership, Ross E. Mattis, Riverton, Chairman.
Publicity, John Conner, Caldwell, Chairman.

10:45 A. M.—"Developing a Docile Strain of Honeybees," Henry Brown, Cape May Court House.

11:15 A. M.—"Making a Radial from a 4-Frame Reversible," Charles Schilke, Matawan.

11:45 A. M.—Question Box.

Afternoon Session

1:30 P. M.—Election of Officers for 1935.

1:45 P. M.—"What the Government Is Doing to Develop Honeybees," W. J. Nolan, Bee Culture Laboratory, Washington, D. C.

2:45 P. M.—"Service in the Beehive," Arthur L. Axtell, Roseland.

3:30 P. M.—"Removing Honey Without Escapes," Paul L. Holcombe, Lambertville.

Ohio's Short Course in Beekeeping

A three day short course in beekeeping to be held January 29, 30 and 31 of Farmers' Week at the Ohio State University is being sponsored by the extension service and the Ohio State Beekeepers' Association. Speakers, besides Ohio men who can give pertinent suggestions on local problems, will include Professor E. F. Phillips of Cornell University and Dr. James I. Hambleton, Washington, D. C.

Everyone is extended a cordial invitation to attend the short course.

Beekeeping Short Course at University of Illinois, January 15-17, 1935

The annual beekeeping short course of the Beekeeping Division of the University of Illinois will again be held in connection with Farm and Home Week of the College of Agriculture, Urbana, Illinois, during the week of January 15-20. The beekeeping program will be given on January 15, 16, and 17.

Subjects of interest to both amateur and experienced beekeepers will be discussed during the three-day period. Various speakers will cover the field of beekeeping, including the fundamentals of bee behavior and reactions through phases of production to the marketing of the crop. A special session will be given over to the discussion of bee diseases and their treatment. Among those assisting V. G. Milum, the University Apiculturist, in this school for beekeepers will be:

G. H. Cale, of the American Bee Journal staff.

C. L. Duax, Chief Apiary Inspector.

Carl E. Killion, of Paris, Illinois.

E. F. Peterson, of Kewanee and Wesley Osborne, of Hillsboro, Secretary and Treasurer respectfully, of the Illinois State Beekeepers' Association.

In addition to the beekeeping discussions, those in attendance will have opportunity to attend sessions in horticulture, vegetable gardening, dairying, poultry, farm management, and soils and crops. General sessions for all groups each day give opportunity to hear outstanding speakers on various phases of farm activities.

There are no fees connected with the course and the only expenses are those for board and travel.

Short Course at University of Manitoba, January 14th to 25th

The annual beekeeping short course will be held at University of Manitoba, Winnipeg, January 14th to 25th. The lecturers are A. V. Mitchener, Professor of Entomology and L. T. Floyd, Provincial Apiarist.

In all, about fifty lectures and demonstrations will be given covering all aspects of the subject of practical beekeeping. Typical of subjects discussed are "Literature on Beekeeping," "Beekeeping Locations," "Canadian Beekeeping," "How to Begin," "Races of Bees," "Grading Honey," "Judging Honey," "Chemistry of Honey in Beeswax," "Bee Diseases," "Pollen and Nectar Producing Plants," "Factors Influencing Honeyflows," etc.

A feature of the course will be the use of the new honey grader. Students will be given an opportunity to grade samples of honey. Students may bring about two ounces or more of each of their own samples to grade if they wish to.

In addition to Prof. Mitchener and Mr. Floyd, who will give most of the lectures and demonstrations, approximately eight other speakers from other University departments will lecture to the short course students.

Sheboygan County Meeting

All officers of the Sheboygan County Honey Producers' Association were re-elected at the annual meeting of the organization held in the city hall of Plymouth, Wisconsin, November 3. They are Oscar Kazemeier, Kiel, President; Herman Schulz, Random Lake, Vice-President; Emil Langkabel, Plymouth, Secretary-Treasurer and Ben Goehring, Plymouth; Charles Stauss, Elkhart Lake, and Alfred Baumann, Glenbeulah, directors.

It was planned at the meeting to conduct an educational program next year and to have meetings during the summer months. Elimination of foulbrood among Sheboygan County bees were discussed.

James Gwyn of the Department of Agriculture and Markets and H. F. Wilson of the College of Agriculture and Secretary of the National Honey Institute, were unable to attend the meeting as planned.

Wisconsin Trade News Bureau.

Michigan Fourth District Meeting

A joint meeting of the Fourth District of the Michigan State Beekeepers' Association and Associated County Associations was called by Jay Cowing, President and Prof. R. H. Kelty of the Michigan State College. It was held at the Woodman bee supply building in Grand Rapids on December 5.

There were about seventy-five in attendance with representation from practically all of the twelve counties in the district.

A question box was held for the benefit of the less experienced and a demonstration was given by Jay Cowing, how to pack and check colonies for the winter season.

The subjects discussed were "What Should Honey Sell For at the Present Time," "Do We Need State Aid in Controlling Foulbrood?" and "The Benefit of a Strong Organization."

Mr. H. J. Rohmlow, Secretary of the Wisconsin Beekeepers' Association, talked on what they were doing in his state along these lines.

It was generally agreed by all those in attendance that the efforts that have been made in building up the organization have been well worth while. This being reflected by the better cooperation among the beekeepers in the district, stronger prices, and a scarcity of price cutting.

It is estimated that at least 15,000 colonies of bees were represented at this meeting.

Colin C. Lillie,
Secretary and Treasurer.

Indiana Meeting

The Annual State Beekeepers' Convention was held as scheduled November 8th and 9th. The splendid program was not as well attended as might have been wished. Members are referred to the December issue of "Outdoor Indiana" which contains an extended account of the meeting.

Oregon Meeting

In November, the Oregon State Beekeepers' Association gathered in Portland for its annual two-day convention. These two days were honeycombed with activity.

George W. Nichols, Jr., of Talent, was elected President succeeding A. J. Sanford, former head of the organization. S. D. Williams, of Portland, was re-elected Vice-President and H. A. Scullen, of Corvallis, Secretary and Treasurer.

Mr. Scullen gave an illustrated talk on "The Anatomy of the Honeybee" and "Transferring Bees to Modern Hives."

One of the most important actions of the regional beekeepers was the unanimous adoption of a resolution launching a drive for more thorough bee inspection by state officials. New funds are asked in order to perfect inspection machinery and make it of greater value to the industry. An appropriation of $2,500 is requested to vitalize this new inspection service.

Marketing problems also were discussed as well as preparation of a state code for apiarists and suggested revision of the state Pure Food Laws that permit 25 per cent water content in honey, instead of an 18 per cent content as recommended by many beekeepers to reduce the additional possibility of fermentation.

C. M. Litteljohn,
Washington.

British Columbia Meeting

The sixteenth annual meeting of the British Columbia Honey Producers, Fraser Valley Division, was held in New Westminster recently.

A spirited discussion with the representatives of the Vancouver Exhibition Association concerning the honey display at Hastings Park, brought out many good proposals on both sides for the benefit of British Columbia honey publicity.

A suggestion to include a subscription to a magazine with the annual fee to the association was accepted.

A resolution to demand inclusion in the new Health Assurance Act of the British Columbia Honey Producers' Association was endorsed.

Great tribute was expressed by various members to the work of inspectors and voluntary experts in cleaning up some contaminated areas in the valley.

Officers for 1935 were elected as follows: Honorary President, J. B. Munro, Deputy Minister of Agriculture; President, J. W. Winson; Vice-President, E. R. Freeman; Secretary-Treasurer, A. W. Finlay; Auditor, M. V. Jenks; Membership Secretary, V. F. Jenks.

The following directors were elected: J. A. Catherwood, Mission; E. R. Freeman, Milner; J. H. Holt, Kennedy; John Street, Hammond; H. F. McAllister, A. A. Paull and S. P. Hodgson, New Westminster; H. I. Johnston, Chilliwack; P. Faircloth, Coquitlam.

F. H. Fullerton,
Vancouver, B. C.

Yakima County Meeting

The Yakima County Beekeepers' Association members discussed the value of codes at their November meeting, but postponed endorsement until the fate of the apple code, pending in the Yakima County superior court is decided. W. J. Robinson, Director of Agriculture in the state sent word of his approval of the plan for a honey code. R. C. Immele of Toppenish and W. C. Wixom spoke in favor of the code.

I. L. Swain of Prosser advocated advertising honey through the American Honey Institute, believing growers would realize more benefits from advertising than from a code.

A new method of honey clarification recently developed by chemists of the federal department of agriculture was discussed. It is said that this method, which removes particles of wax and suspended material and retains good color and aroma, will revolutionize present methods.

The Italian Bee

From January, 1861.

By the Rev. George Kleine

THE so-called Italian bee has been cultivated from time immemorial in the northern portions of Italy, and some adjoining districts, and differs from the common honeybee only by its peculiar color and markings. In the workers the first three upper segments of the abdomen are of a bright orange color, though the lower margin of the third segment is black. While young, this coloring is brighter, and becomes darker as they increase in age; but under all circumstances it remains sufficiently marked to enable the observer to distinguish the two kinds at a glance. Still more conspicuous is the difference between the Italian and the common queen. The Italian queen has not only the orange color segments in common with the workers, but the yellow predominates, also, in all the other segments. The drones differ from the common drones, in having the first three segments bordered with orange, and in having orange-colored spots besides.

Dzierzon, as he states, was "greatly surprised by the unusual appearance presented by the Italian bees, not having anticipated so marked a difference in color. Each worker, also, when gorged with honey, seemed to be swollen to the dimensions of a queen." All who see the Italian bee for the first time, are, like Dzierzon, agreeably surprised; so unusual and singular is their appearance.

As early as the time of Aristotle, the existence of the two races was known; and Virgil clearly describes the difference between them in the fourth book of his Georgics. Varro and Columella also mention them. And at this day both varieties are met with in various parts of Italy. Mr. Deus, of Dusseldorf, found the orange-colored bees at Genoa, and the black in Nizza. Spinola found both kinds in Piedmont, though the common bee was less frequent there than the pure Italian. The reddish or roseate bee, mentioned by Della Rocca, which is said to have been introduced into France from Belgium and Holland, is probably the Egyptian variety, described by Latreille as the **apis fasciata.**

Though the Italian bee was so long and extensively known, it escaped the notice of the German apiarians, who little anticipated how important she would prove to be for the settlement of controversies which had long been maintained among them. Capt. Baldenstein, of Cour, in the Grisons, first called attention to this bee in 1848, as peculiarly adapted to determine the question as to the origin of drone-eggs, and as furthermore of great value in practical bee culture. During his long sojourn in Italy, he had enjoyed ample opportunities to observe the habits of these bees, and subsequently introduced them into Switzerland. Though he did not succeed in multiplying pure stock, he obtained some important results, an account of which he communicated to the Bienenzeitung, and these attracted to it the attention of the intelligent correspondents of that periodical.

The opinion that the queen is the sole mother of the colony, laying all the eggs from which the brood proceeds, had long been entertained, and was generally acquiesced in, till Riem made the remarkable discovery, that workers, though usually regarded as neuters, were capable of laying drone-eggs. This discovery was, seemingly, so anomalous and incredible, that Bonnett, to whom Riem sent an account of it, cautioned him against announcing so manifest an error, lest he should forfeit his well-earned reputation as a careful and reliable observer. When Huber and others, subsequently, demonstrated that Riem's discovery was unquestionably true, Knauff immediately used it as the substratum, in part, of a new theory, which was very favorably received. According to it the queen lays only the worker-eggs, whilst certain female bees—which he called drone-mothers, lay the eggs from which the drones proceed. Dzierzon early attacked this theory, and thereby involved himself in a protracted controversy with its advocates, which was still prosecuted with all its original ardor and acrimony, when the Italian bee brought it to a sudden close. One of the most strenuous defenders of Knauff's theory announced that the Baron of Berlepsch had introduced Italian queens in hives of common bees, after removing the native queens. This was to serve as a test experiment. If in the following spring Italian drones were hatched in these hives, it would have to be conceded that the queen lays drone-eggs; but if common drones issue, they must be regarded as proceeding from eggs laid by the workers. Expectation perked up her ears, and curiosity put on her spectacles, awaiting the result in eager anxiety. Spring came, and in due time an abundance of Italian drones issued, not only from the Berlepsch hives, but also from hundreds of others in which Italian had been substituted for common queens. Thus the new race became the means of settling, definitely, another important question in bee culture.

The most striking point in the Dzierzon theory, and one of the most startling phsiological doctrines ever enunciated, is unquestionably his proposition that, among bees, the male sex is developed by parthenogenesis, and the female under the influence of male sperm. This doctrine was violently assailed on every hand. But Dzierzon, relying on his own personal observations, felt confident of its truth and maintained it against all opposition. Finally, when the General Apiarian Convention met, at Vienna, in 1853, he made the following announcement: "By the acquisition of the Italian bees, we are put in possession of the means of testing the truth or falsity of my hypothesis. If the drone-eggs are not influenced by the contents of the spermatheca, the drones must invariably resemble the mother, though she be fecundated by a drone of another race." Numerous and diversified experiments were instituted early next season, and the results being found in accordance with Dzierzon's anticipation, opposition at once subsided.

There was less difference of opinion as to whether the fecundation of the queen is effected in the open air, or within the hive. Janscha and Huber, with the greater number of intelligent observers, believed that the queen necessarily must and always does leave her hive to meet the drone. This was the general sentiment, but it was not unanimously concurred in; and many practical beekeepers still entertain doubt. But when Italian bees are introduced in any neighborhood where common bees are kept, a few seasons suffice to render the truth obvious. Young queens of the common race, will soon be found in various localities producing a mixt breed though there be no Italian stocks within two miles of the apiary. Hence, these queens must, at least on one occasion, have left their hives to meet the drones; and to the Italian bees are we indebted for demonstrative evidence of the fact.

In our variable climate, where thousands of bees perish from the vicissitudes of the weather, it would be of great practical importance if the Italian bee should prove to be more hardy than the common kind. Dzierzon remarked evidence of this trait in them, soon after he obtained his first colony. On the 12th and 13th of March, while the ground was still very generally covered with snow, he saw, with surprise, that they were busily carrying in pollen; and very few of those that dropped on the snow, became chilled. Though native of a warmer climate, and therefore might be presumed more sensitive to cold, he thinks the apparent paradox of greater hardiness may be explain-

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ed, by supposing that in their native land, where the mornings are cool and the nights are frequently cold, they instinctively labor early, because the nectar of the flowers is dissipated by the fervid heat of the day. He also carried Italian and common bees into a cold room, and found the former were still actively fluttering at the window, when the latter had already become benumbed.

Dzierzon thinks that their superior ability to endure cold, arises in part from their surprising activity and agility—peculiarities which the Baron of Berlepsch also concedes to them, and which he says they display most remarkably, when attacked by or attacking other bees.

Connected with these traits is also their manifest superior courage. They are the boldest champions and bravest defenders of their hives. They are much more vigilant, and far less liable to be caught "napping," than our common bees. Every stranger, of whichever race, attempting to enter their hive, is at once repelled, or arrested and dispatched; and it is hardly conceivable that an Italian colony, having a queen, could ever be overpowered when attacked by our common bees.

We might indeed infer from it, likewise, a greater propensity to rob—a quality not exactly of the most praiseworthy sort. But the propensity to rob is an heirloom in the entire family of bees, and the Italians may, perhaps, be entitled to claim a somewhat larger share of it. The Baron of Berlepsch says, "They endeavor to force an entrance into every other hive;" and another observer states, "That wherever there is anything sweet to be licked up, the Italians are always sure to be first on hand."

The disposition to rob results from an inordinate desire to accumulate stores of honey, and if displayed more strikingly by the Italian than by common bees, it manifestly presupposes in them a higher degree of industry—a trait, in fact, for which they are preeminently distinguished, and for which Capt. Baldenstein already awarded to them the highest praise. He found that, under precisely similar circumstances, his Italian stocks always secured more ample stores than his common hives, and could generally spare more surplus honey, when the latter had not even laid up enough for the winter.

An apiarian friend wrote to Dzierzon—"I can now unhesitatingly recommend the Italian bees. Whilst

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during the past summer our common bees were comparatively indolent, the Italians were perseveringly busy, adding perceptibly to their stores from day to day; whereas the common stocks were constantly diminishing in weight. I frequently opened the hives and found that while the latter had stored up little or nothing, the former not only contained a good store of honey in capped combs, but also a large quantity freshly gathered in open cells. I could observe, too, that they visited many flowers to which I never saw common bees resort, and this fact helps to account for the surprising difference in the results."

In addition to their admitted industry, the early expulsion of the drones has an important bearing on the productiveness of colonies. An early riddance of supernumerary consumers must exert an obvious influence on the preservation of stores, and enable the bees to enjoy the full benefit of their labors. The fact thus becomes of practical value to the beekeeper, as increasing his chances of success. The fact itself has, indeed, been questioned; but it has been so frequently observed, that it cannot well be longer held in doubt. Thus Mr. Saghy, of Hungary, says: "The most important advantage presented by the Italian bees, is the greater quantity of honey which they gather and store up. And according to my observations for three years, this advantage results mainly from the earlier expulsion of the drones, to which they are instinctively prone."

Another and highly important quality, in a practical point of view, possessed by the Italian bees, is their mild and tractable disposition. A dread of the bees' sting does undoubtedly, to a large extent, operate to the discouragement of bee culture. There are many timid persons, who are alarmed by the presence of the insect; and others, less sensitive indeed, still cannot approach a hive without painful apprehensions. Others again, though disregarding the momentary pain inflicted by the sting, suffer so much from the swelling which ensues, that they feel constrained to forego the pleasures of a pursuit which exposes them to such risks. These objections are, in a great measure, obviated by the introduction of the Italian bee, which is assuredly less irritable than the common kind. It certainly can and will sting, but generally does so only on provocation. In comparison with the common kind, they may justly be termed gentle and peaceable. Their animosity becomes excited only when they are accidentally annoyed, or intentionally irritated.

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BEEKEEPERS ITEM, San Antonio, Tex.

Crop and Market Report

Compiled by M. G. Dadant.

In connection with the celebration of the seventy-fifth anniversary of the founding of the American Bee Journal, it may be of interest to our readers to review the range of the honey and beeswax markets in that span of years.

Unfortunately government figures are not available until recent years for honey, and not until 1877 for beeswax. In our discussion in this page, the government statistics will be used for beeswax. Average jobbing prices will be used on both beeswax and honey.

For honey, we will use market reports in the columns of the American Bee Journal up until the time government price statistics are available, when these will be substituted.

Before proceeding with such a discussion, it is well to bear in mind that at about the time of the beginning of the American Bee Journal, three events took place which were to revolutionize beekeeping. These were, the invention of the movable comb hive by Langstroth in 1851, the invention of bee comb foundation by Mehring in 1857 and the invention of the honey extractor in 1865 by Hruschka.

The last one of these in particular had so great a bearing on prices of extracted honey, that it would not be fair to consider an average of honey prices and include those previous to this invention, or immediately succeeding it and before extracted honey had come into sufficient supply to make a market for itself.

Though the honey extractor was invented in 1865, it was not till several years later that it really became a potent force in affecting honey prices in the United States.

As a matter of fact, honey ranged from 20 to 30 cents a pound until 1872, did not drop below 10 cents a pound until 1875, which should just about coincide with the upturn in production of extracted honey owing to the new invention.

Strange that, though this country has had depressions and declines, followed by advances during the 58 year period since 1875, only in one period of four years (1917 to 1920 inc.) did the average price of white honey go above 10 cents. Ours has been comparatively a stable product in its price range.

Inclusive of the war years with high prices, the average price for the 58 years has been 8.3 cents per pound. If the four war years are omitted, then the average price for the remaining 54 years would be 7.45 cents per pound, and the average since the slump of 1920 has been 7.3 cents per pound. These are figured on New York prices.

An examination of these averages will show just how nearly we are now getting to the average price. Some honey was sold this season at a 7 cent price, New York, so that we would need have but a half cent to a cent advance to get to the average. Naturally we can expect more or less fluctuation in the years to come.

What is really remarkable is that present prices of honey are as high as they are, considering the almost complete loss of our export trade. There can be only two explanations. First, the light crop, which has undoubtedly been very short the past two years. To this may be added the lack of carry-over.

Secondly, is, without a doubt, the results of the publicity for honey and its uses as exercised by the American Honey Institute. This is particularly shown in the contrast of present amber honey prices, compared with those in the past. Unfortunately this page is not long enough to go into that phase of the subject.

Without a doubt, much more honey is going into industry than at any time in the past, and this honey is moving into these channels **on its own merits**, and not because the price is low. Yet it is my honest opinion that the beekeeper who has the interest of the industry at heart as well as his own future will do well to use a modicum of reason in not pushing prices to the point where we will lose those markets which have been built up, and which may desert honey for some other sweet if disparity in prices becomes too great. Far be it from me to suggest where that line of cleavage is.

Beeswax Markets

Beeswax has been a more fluctuating product and a product in which we have not so nearly reached average with our 1934 prices as we have in honey.

Our average of prices gives us 28.4 cents for the 59 years. This includes two abnormally low years, 1890 and 1932 when the price went to 11 cents, and three abnormally high years, 1918, 1920, 1926, when the price was above 38 cents.

This curve for beeswax over the years is punctuated by sharp breaks, up and down with the medial line of 28.4 as mentioned before.

Just why this market has not responded as has honey, is difficult to determine. In the first place it is more difficult to create markets for beeswax than honey. It is not an edible. It is likely to come back slower. In the second place, undoubtedly, during the lean years, people were seeking every avenue both here and abroad, resulting in dumping of heavier stocks. Or perhaps, just the reverse, some of the larger beekeepers in this country would not take the lowest prices, held for higher. These accumulations possibly are just now being fed into the market.

Perhaps it is on account of the enormous imports of beeswax, which were practically nil before 1907 and rose to an all time high in 1930 of over five million pounds.

Yet, the imports have receded since that time.

Probably it is a combination of all these causes. There can hardly be a doubt, however, that with a return to normal in industries using beeswax, as well as in the beekeeping field itself, we should approach our medial line price. This remains to be seen.

Without a doubt, the time would be hastened, were we able to do for beeswax, what the American Honey Institute has done for honey.

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WANTED—HONEY and BEESWAX. Beekeepers will find it to their advantage to communicate with us. Please send samples, state quantity available and prices. CALIFORNIA HONEY COMPANY, Hamilton & Company, Agents, 108 W. Sixth Street, Los Angeles, California.

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The Evolution of Beekeeping Practice

(Continued from page 32)

the honey flow, when they were given three extra combs to induce the rearing of more bees for the honey flow. In this connection he wrote: "I have had colonies, after casting three swarms, at work in the supers within five days after contracting. I think that the advantages of this contracting system will be seen; or it may be called an enlarging system; that is, enlarging the brood-chamber for about six weeks during the time that the queen is not only the most prolific, but when such prolificness gives us bees to become field workers, just when we most need them."—(American Bee Journal, Vol. 21, p. 437).

The proper capacity of the brood-chamber was thought by many beekeepers at this time to be five Langstroth frames, except during the short period mentioned when the brood-chamber of the strongest colonies was expanded to eight frames. The contraction system came to be used not only when hiving swarms, but was used on established colonies as well. Contraction of the brood-chamber, the use of the queen-excluding honey-boards, and reversing or inverting the brood-combs to cause the bees to take practically all the honey to the supers, became quite the fashion for several years among the leaders at this time. Even Dr. Miller wrote: "Up to the time of putting on supers, the desire has been to have the bees occupy as many combs as possible. I have had as many as nine frames occupied with brood, without my spreading the brood, or doing anything to urge the bees or queen further than to see they had abundant stores. When it comes time to put on supers they are reduced to four or five frames."—(C. C. Miller, 1885, "A Year Among the Bees," p. 419).

Demand

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The POSTSCRIPT

GOSSIP ABOUT THE OFFICE IN THE MAKING OF THE MAGAZINE

William Spring, of Manchester, New Hampshire, wishes to correspond with beekeepers in localities where marjoram **(Origanum vulgare)** has become established. He wants to know about the color and flavor of marjoram honey and to secure some seed.

A number of such plants as marjoram, thyme, motherwort, catnip, purple loosestrife, and others which escaped from our grandmother's herb gardens have become established locally and give the beekeeper good crops of fragrant honey.

— : —

A reader from Portland, Oregon, asks for information about beekeeping in Alaska. While an occasional article has been published about that region but little information is available. If there are any successful beekeepers in our northern territory we would be glad to get in touch with them.

— : —

Beekeepers at the recent Iowa convention were discussing the first convention of the present organization held at Des Moines in December, 1912. When a photograph of the members in attendance at that meeting was brought out it was found that but few members are still living. Only one or two men who attended the first convention were present at the 23rd session held at Ames in November. All of which reminds us how brief is the active period of man's life and suggests that we need to keep busy if we are to do all the things which we have set out to accomplish.

— : —

I wonder how many of our older readers will remember the name of W. C. Frazier which appeared frequently in the pages of this magazine in the eighteen nineties. Frazier received much publicity because of the fact that he happened to be importing queens at the time of the passage of the McKinley tariff bill which provided that animals imported for breeding purposes must be accompanied by a copy of the pedigree to avoid payment of duty. Queen bees were recognized as within the classification of animals imported for breeding but since no pedigree could be produced Frazier found himself facing a possible fine. The mixup was straightened out by a special ruling in time but the queens were all killed when the ship was fumigated because of an outbreak of cholera. After all the agitation, Frazier found himself in possession of some cages of dead bees only.

— : —

The events of this long distant period are brought to mind by a letter from Mr. Frazier who writes that he still does his share of the work on his Idaho farm near Nampa. Beside his bees he is interested in alfalfa and dairy cows and poultry. Incidentally he usually takes time to go deer hunting in the fall and he greatly enjoys prospecting in the mountains. He assures me that he knows where there are some wonderful prospects for gold mines. Thus my friend of a day long gone retains the spirit and enthusiasm of his youth. Some day I hope to visit those mountains with him.

— : —

I am coming to believe that the behavior of the blossom itself in the secretion of nectar which may attract the bees, is far more important in the pollination of orchard fruits than has as yet been recognized. Fruit growers well know that at times there is but scant set of fruit even though plenty of bees be within reach of the orchard. Until we have investigated the influence of soil and weather factors on the behavior of the flowers we will be more or less in the dark.

— : —

With the marriage of our daughter, Ruth, the last of the children leaves home. Thus ends the principal business of life—the rearing of a family. My daily routine will not be greatly changed but wife has lost her job. For more than thirty years her entire activity has been centered in the children. Their food, their clothing, their health, their schooling and their behavior have occupied her fully. What a wrench to a mother after all those years to suddenly find herself no longer essential to those to whom she has given herself completely. No longer is she the guardian and nurse but she enters their homes as a guest to be served. From this time forward we must build our lives on a new foundation with new interests and new incentives.

— : —

A reader asks about motherwort as a source of honey and suggests planting it for that purpose. Motherwort is native to Europe and Asia and in this country, like marjoram, has become naturalized as a weed after escape from old-fashioned herb gardens. It is widely distributed and is found from Canada to Florida and westward. Usually it is found about barn yards and old building sites. While regarded as a weed it is not difficult to control and seldom becomes a pest. The bees are greatly attracted to motherwort and it apparently yields much nectar.

— : —

While it has long been contended that it will not pay to plant for honey alone, I am not so sure that motherwort and catnip might not pay on otherwise waste land. I would very much like to see an area of ten or more acres devoted to these plants to see what the bees might be able to harvest. There are large areas of waste land in certain neighborhoods which could well be devoted to honey production since no other use appears probable.

— : —

In this country we know the perennial sweet pea only as an ornamental but years ago in Germany an effort was made to establish it as a forage crop. It is said that it produced at the rate of four tons per acre and that three cuttings were secured thus yielding an enormous amount of forage. Rich harvests of honey were reported but of this I feel some doubt.

— : —

A most interesting problem is raised by the letters of a professional man who is weary of his work and anxious to take up beekeeping. I have advised him to buy a few bees to be cared for along with his present business until he becomes familiar with the new enterprise. Because of the nature of his work which takes him away from home for long periods this arrangement seems impossible. To me it seems very risky, in times like these, to abandon a dependable source of income to engage in any business with which one is unfamiliar.

— : —

I know several who have changed from some other occupation into beekeeping and have been successful, but in most cases they had a few years when income was small and unpleasant experiences were the usual order. I like to encourage those who look to honey production as a possible way to a pleasanter mode of life but want to see no failures. I wish I knew how to suggest a solution of my correspondent's problem.

— : —

C. W. Wood, of Copemish, Michigan, who occasionally writes for this magazine, appears to be a most interesting chap. He knows more about more different kinds of plants that any man I know. Something like a thousand different varieties of plants are under observation in his garden. It is fortunate that a few of the old time naturalists, who do not confine their interests to a narrow specialty, still remain.

— : —

Supers filled with new honey in October in this region is something which has not happened for many years until now. Asters yielded as they have not done for a long time and gave many beekeepers some honey after a season of failure. In looking over the files of the years gone by one is impressed with the fact that aster yields freely only at rare intervals if we are to judge by the published reports.

FRANK C. PELLETT.